Gleanings in Bee Culture

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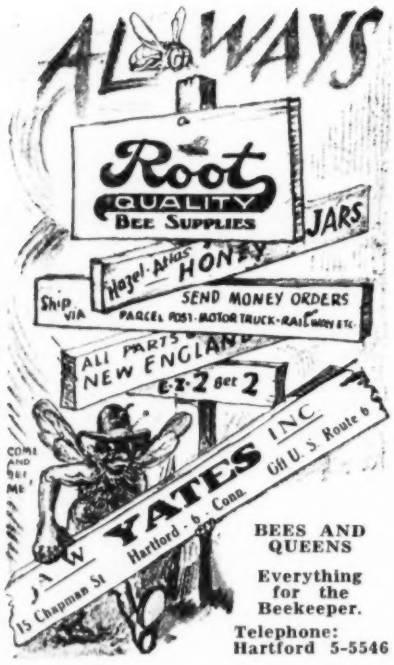

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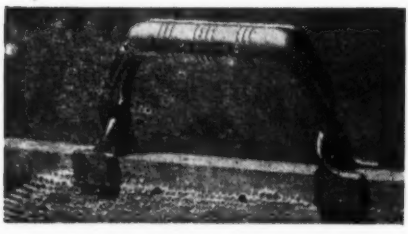

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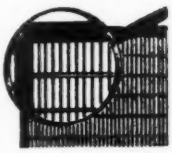

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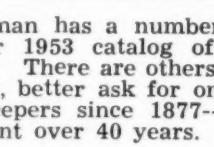
Bee Lines to The Editor



"I would like to see more practical, how-to-do, articles in Gleanings. You have plenty of articles on scientific treatises, pollination, honey marketing, diseases, etc. In looking through old Gleanings of about 1910, I see many articles on equipment and controversies about the different hives, swarm prevention, diagnosing, and handling bees, supering, comb honey production, etc. Articles like those are interesting and valuable. I suppose all those hive controversies, etc., are settled now and so we don't get articles like those anymore".—J. H. F.

* * * * *

"Regarding crystallized comb honey by Olive Burr of California, I do not want to pick a quarrel with this party or Mr. Badger of Ohio, but any of us who have melted this honey knows that you do not have very much in the way of good honey to eat. You probably could sell it to the bakers, but the ones we

(Continued on page 252)

Monthly Honey Report

March 18, 1953

The following figures represent an expression of current prices from beekeepers and honey packers over the country. They are based on several reports from each state averaged with the reports in the region. Where insufficient information is returned, prices have been omitted from the chart. Where three figures appear on the chart the first figure represents the low, the middle figure represents the average, and the third figure the high price in cents per pound. Where only two figures are used the low and high are shown.

	Atlantic North	Central South	Central North	Mid-West	West
Bulk Honey:					
Table Grade			11-12-12½c	12-12-12½c	11½-12-12c
Industrial Grade			8½-10-10½	10 11c	
Price to Grocers:					
5 lb. jar - can	18-22-26c	16-22-27c	16-18-19		16-17-20
3 lb. jar - 12's		20-22-25			
2 lb. jar - 12's		20-25-31		22-23-25	20-23-25
1 lb. jar - 24's	25-28-30	24-26-33	22-24-27	23-25-27	22-24-25
Comb Honey:					
Cs. of 24 Sec.		$6-7.05-8.40			
Retail Price:					
60 lb. can	14-18-20	15-18-23	14-16-22	15-16-20	13-15-17
5 lb. jar	22-29-35	20-27-35	20-23-25	19-21-25	20-22-25
3 lb. jar	31-37-40	25-30-38			
2 lb. jar	30-34-38	30-33-40		24-28-31	25-29-35
1 lb. jar	30-37-45	29-35-37	28-32-35	26-32-37	30-33-35
Honey Sales:	Fair	Fair	Fair	Fair	Fair
Estimated Crop:					
Condition based on normal %	95	93	77	72	90

A few comments were as follows:

"Most prices are remaining about the same as previous months."—Ohio

"Sold out until July."—Wisconsin

"Most of Wisconsin honey is in the hands of packers."—Wisconsin

"Honey is about all out of the beekeepers' hands."—Florida

"We have had good rains during the last three weeks, and prospects for a honey crop are much better. Bees are brooding quite freely and stores are ample so far by equalizing."—Arizona.

"Hard to estimate prospects. Drouth was bad on young plants."—Kansas

"Good flights here on March 9 and 10."—Minnesota

"A mild late February started brood rearing. Many colonies have hatching brood, two and four frames and a drone or two. Winter loss will not be heavy. Showers falling over east Nebraska. Drouth last fall hurt too much."—Nebraska

The general commodity price as reported in the Journal of Commerce for some 30 commodities stands at 273.8 as compared with 271.1 a month ago. 1938 is figured at 100.

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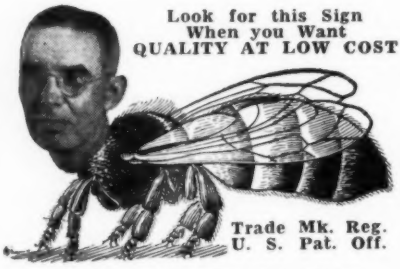

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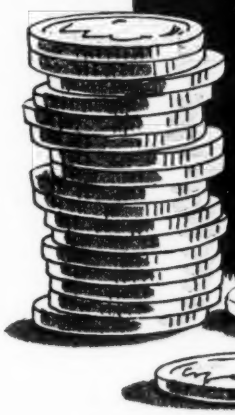

The Honey Institute's Silver Anniversary

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It has conducted its activities on such a high plane that its prestige and position throughout the nation command the respect of not only the honey industry but of the professional field and of the large national manufacturers and distributors of other food products. Translated into dollars and cents, this promotion is worth many millions of dollars. Such meritorious work must continue—and with modest contributions from beekeepers, processors, and merchandisers alike.

It is fitting, then, that on this silver anniversary, all of us back the Institute. Why not—right now—send a special extra **birthday gift.** It will be turned into silver dollars for presentation to the Institute in recognition of this eventful occasion.

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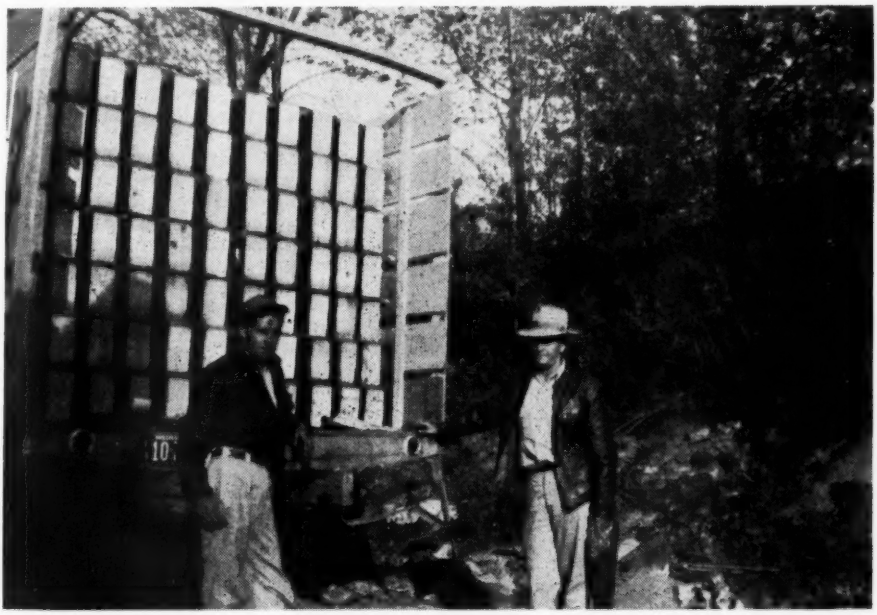


Chas. Langford and P. A. Yelverton, of Mayhew, Miss., after their arrival preparing to remove their load of 770 packages of bees.

In May of 1952 we obtained 770 two-pound packages of bees from the South. These were delivered by truck and the 1350 miles from Helena, Georgia, took three days. When the bees left Georgia the temperature was about 90 and when they crossed into Canada it was down to 50 degrees, a nice warm sunny day for us but a little on the cool side for our southern friends. This is mentioned just to show the wide range of temperatures involved when shipping packages at that time of year.

I believe this was one of the first deliveries of bees made by this shipper in their own truck in the way of an experiment. Our own experience had been that packages received in late May or June when shipped by express, resulted in

This illustrates the emphasis we place on "shelter" at all yards.

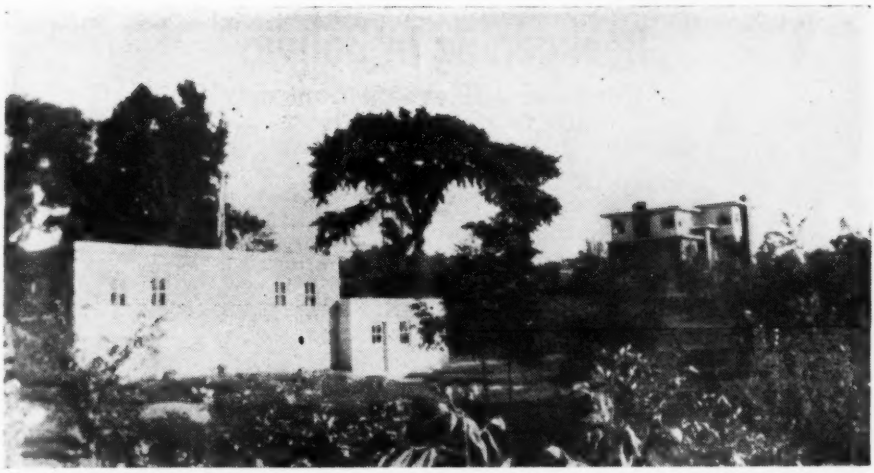
heavy loss if there was hot weather encountered at any time during the journey. On this shipment of 770 packages I am sure there was not a quart of dead bees in all the packages combined and yet they had gone through considerable temperature extremes. The use of trucks for shipping package bees is the answer to many problems.

After May 20th, package bees are cheaper, and when shipped by truck are not greatly affected by temperature extremes. Thus there is available to the beekeeper a cheap colony of bees which under the impetus of warmer weather develops fast and soon reaches the stage where it can be put to use. In a late package the proportion of young bees is probably much higher than in those packages shipped a month earlier. For this reason a two-pound package is probably not much inferior to an early three-pound package, as far as the actual working ability of the package is concerned.

By May 15th we find our colonies that wintered quite well fall into three classes. Out of every five colonies we find two that are average, two that are too strong, and one that is weak. About June 1st we commence equalizing, using one of the strong colonies to bring the one weak colony up to strength, which at the same time reduces the strength of the strong colony to a point where we can handle it. The two average colonies we do not touch, except of course for the usual routine work. This still leaves us with an overly strong colony and this is where the package enters the picture.

Bearing in mind the manner in which we intend to use the package bees we follow this general pattern. We try to keep our yards around 125, although they sometimes drop to 75 or may climb to 175 for one reason or another. A yard of 125 seems to be a size which takes a full day's work to complete, so that we waste a relatively small amount of time on the road to and from work. In each yard to take care of that strong colony (one out of each five) we place 20 to 25 packages. These are installed between May 15th and June 1st simply as packages forming new individual colonies, given a comb or two of syrup, and left to develop by themselves. Dandelion flow in this area normally runs from May 16th to June 1st, so that under the impetus of the dandelion flow they get off to a good start.

All queens are introduced by the "drop method", a system shown to me by my father, the late John A. MacKinnon. We have found no other way of introducing queens with such certain chance of success. The usual practice of cage introduction runs some risk of failure. The bees may fail to release the queen or feed her, the entrance to the cage may possibly be plugged, or the bees simply will not accept



The building in the foreground is our largest bee cellar. In part of it is housed each winter about 2000 colonies. By eliminating aisles, an additional 600 could be squeezed in. The air is oil heated, filtered, humidified, and circulated automatically during the five months they are in.

her and within several minutes after being placed in the colony she and her attendants are all dead. How they are able to sting them through the wire has always puzzled me, although I have watched them kill a queen and her attendants completely in a minute or less. In using the "drop method" when the bees do not want the queen, we simply remove her and re-introduce her later, whenever we get a chance during the course of the day's work. The advantage of this method is that when we leave the yard at the end of each day we know that each colony has a queen acceptable to the bees.

Another unorthodox procedure is that we are forced to do bee work in all kinds of weather, honey flow

(Continued on page 251)

This type of truck advertising pays. One of our five sons standing in the foreground.

Beekeeping in Bolivia*

"The Land of Pleasant Contrasts"

By Dr. J. Alex Munro**

This photo was used on the author's Christmas greeting card, and shows the Munro family with a young llama which posed while a friend snapped the picture. The picture was taken on the Bolivian Altiplano, near Lake Titicaca, where the altitude is some 13,000 feet above sea-level.

In this landlocked country of contrasts there is much to attract the interest of a newcomer, and having been in Bolivia for not quite a year I would fall into the newcomer class. The colorful costumes of the highplains Indians, their gay fiestas; the llamas (most stately beast of burden to be seen anywhere), the great Lake Titicaca highest navigable lake in the world; La Paz one of the highest administrative capital cities in the world with its population of some 350,000; the ruins of ancient civilizations; the hospitality of the people, all contribute to making this a wonderful place.

As a beekeeper, one of my first surprises was to find that beehives generally are made of mahogany; a cabinet wood we are accustomed to see used only in pianos and other high grade furniture. The bee-men tell me that mahogany, also known as "mara" or "Caoba" is the most readily available lumber, and will probably continue to be used in hive making unless the supply diminishes and other woods may need to be substituted. In this country, which is something like twice the size of the State of Texas there are a great

* A contribution from the Servicio Agricola Interamericano, a technical agricultural service organization for Bolivia, operated jointly by the Government of Bolivia and by the Office of Foreign Agricultural Relations, U. S. Department of Agriculture. United States participation in this work is carried out as part of the Point IV program in Bolivia, administered by the Technical Cooperation Administration, U.S. Department of State, through the Institute of Inter-American Affairs.

** Entomologist, Servicio Agricola Interamericano, La Paz, Bolivia, on leave of absence from the North Dakota Agricultural College, Fargo, North Dakota.

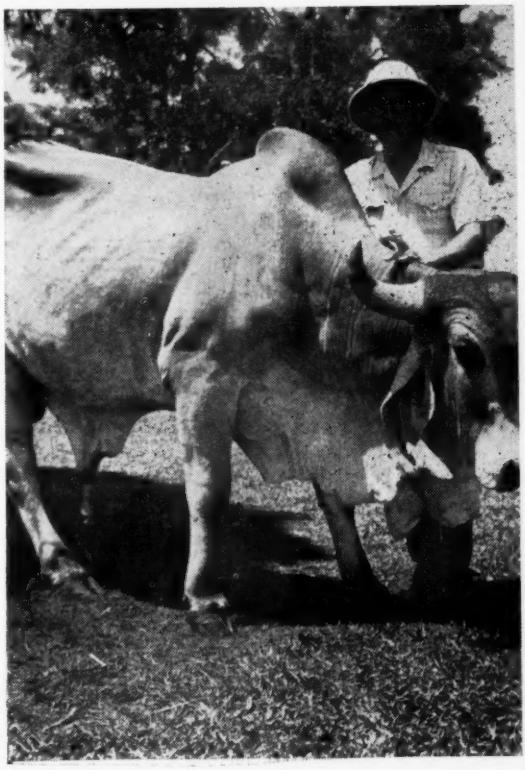
many kinds of woods. Not long ago, while at the Hacienda of Senor Miguel Velasco near Portachuelo in the Santa Cruz region, I was shown a display of woods which he is making from trees growing on his 30,000 acres of land there. There were 362 different kinds of woods already in this display and he indicated that it was by no means a complete representation of all the tree woods on his place.

In general, modern, movable-frame hives are the rule in all parts of this country. They are made by local cabinet makers, carpenters, or the beekeepers themselves. I have seen boards for this purpose being sawed out of the logs by hand. There are, however, sawmills in strategic locations which probably turn out the greater part of the lumber used. The hives are of the standard, ten frame Langstroth type. Occasionally one runs across

Senor Noel Kempff Mercado telling his interested listener, Senor Ernesto Suarez of the Servicio Agricola Interamericano, about beekeeping in the Santa Cruz area. Note the small queen-mating nucleus box he uses in queen production.

the deeper Dadant type of hive. Evidently, the hives are patterned largely on factory-made equipment originally imported from North America. Honey extractors (usually four-frame), queen excluders, smokers, bee veils, wax foundation, and other incidentals are still imported from other countries, including the United States, Canada, and Argentina. The beekeepers in the Santa Cruz area are now making arrangements for the purchase of a wax foundation mill and express the hope that they may soon be making foundation for themselves.

The Bolivian climate, which is probably the most popular subject for discussion, ranges from that of the perpetual, snow-capped Andean peaks of the western border, down through the more temperate zones of the mountain valleys, and in to the tropic warmth of the eastern lowlands. The annual rainfall ranges from a few inches in the arid section of the southwest to upwards of 80 inches in the northeast.



A Brahma bull imported from Brazil by Sr. Kempff Mercado for herd improvement. His farm is truly "The land of milk and honey".

My travels necessarily take me into the three main agricultural regions of Bolivia: from the high-plains experiment station of the Servicio Agricola Interamericano on the Altiplano some 13,000 feet above sea-level, to the central experiment station at Cochabamba of 8,400 feet, and then on down to the lowlands of Santa Cruz where the elevation is about 1,300 feet.

There are few bees on the Altiplano; the only hive I saw was at the experiment station and Director Julio Rea said it was being maintained largely to ensure pollination of some station crops. It was making fair progress despite a lack of natural wind-break protection, a moderate infestation of the bee louse, **Braula coeca**, and the fact that some nocturnal prowler had robbed the hive of several frames of honey several weeks prior to my visit. Director Rea said he did not know of any other hives in this high plateau which stretches from the vicinity of Lake Titicaca southwards, and it appeared to the writer

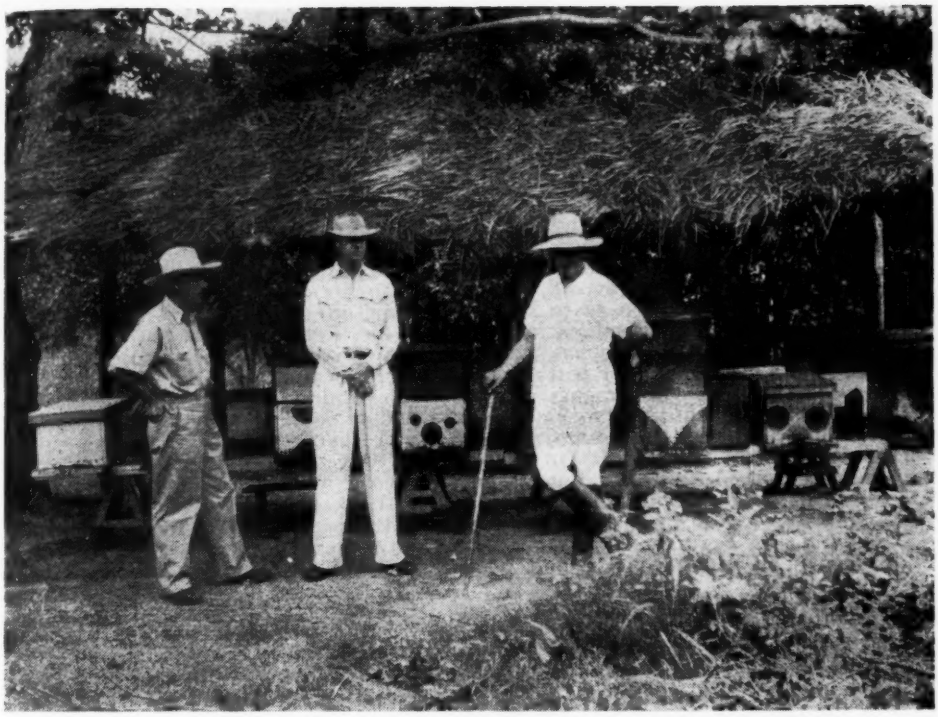
Special shade, consisting of palm thatched structures such as the above, is commonly provided where natural shelter is lacking to protect the hives from the intense rays of the sun.

that beekeeping is not likely to succeed or expand in this region.

At Cochabamba and other mountain valley places I find that beekeeping is a common enterprise. The beeyards range in size from a few to upwards of 50 hives or more. Many of the larger fruit growers keep them mainly for the pollination of citrus and other fruits, even though the honey produced is no small item. Conversation with the owners indicated that they were well aware of the value of bees for pollination.

The natural sources for honey and pollen were fairly adequate in the mountain valleys as well as in the lowlands. Fr. George Pech, Di-

Practically all apiaries visited showed one type of design or other painted in contrasting colors over the front of the hives. There seemed no definite reason for the practice, except that it was the custom.



Dr. Hans Platenius (left), Director of the Experiment Station at General Saavedra; his Associate, Senor Wm. Kenning, who is also President of Cooperativa Apicola Crucena, Ltda., and Senor Juan Pereyra, Manager of "Las Lomas", photographed in front of a well-shaded apiary.

rector of the Granja Escuela (Farm School for Boys) at Chulumani in the mountain region east of La Paz, says the main honey sources there are citrus, coffee, and the flowers of various trees and shrubs. The honey is mostly light amber, of good quality and the yield about 65 pounds per hive. Fr. Pech said he knew of no brood disease in the region at present; that "foulbrood" had come in a few years ago but had completely disappeared. It was suggested that the waxmoth, which is generally present and particularly destructive to weak colonies, may have been the eliminating factor of whatever brood disease may have occurred.

Nosema was observed at La Paz but not elsewhere. The bee louse seems to be present in most apiaries, and in some, especially at Cochabamba, is retarding the development of some colonies. Dr. Flood Andrews, horticulturist at the experiment station there, applied the standard remedy of tobacco smoke, puffed into the hives, but with no apparent success. A few colonies showed upwards of half the bees, and invariably the queen, to be over-run with these parasites.

Ants are a common problem everywhere but are effectively kept out by the use of oil-traps placed beneath the hives. In Santa Cruz the beekeepers report additional enemies of the honeybee. Toads which are friendly to other branches of agriculture, run afoul of beekeeping here, as elsewhere. There is also a bird, commonly referred to as "Frio", whose scientific name is **Pitangus sulphuratus,** which is reported to feed on the honey-laden bees as does the common king-bird in North America.

Senor Noel Kempff Mercado, whose place near Santa Cruz I visited recently, told me that there are at least three indigenous species of bees which invade the honey bee colonies to do them harm. The most destructive one, he said, has been identified as **Melipona flavipennis,**

a dark colored, robust invader about the size of a drone bee. It uses its powerful mandibles in its attack as shown by the severed bodies of its victims scattered around the entrance of the hives attacked. Sr. Kempff Mercado said he had observed that the honeybees resist the invaders but that in the fighting, an average of three honey bees get killed for each invader destroyed. Other native bee enemies of the honey bee he refers to as "mamuri" and "jovovosi", await definite determination as to species. He has many specimens already collected. Each species has its special mode of attack; for instance, he said the "jovovosi" smears a pungent smelling liquid secretion on the honey bees which destroys their natural odor and results in colony confusion and fighting among themselves, to the advantage of the invaders. (A friend suggests they should be named "skunk" bees.) It is mostly the outlying and weak colonies in new wooded locations, that are subject to damage from these pests.

Although Sr. Kempff Mercado devotes the necessary attention to his beekeeping, he has other interests which include cattle, and the growing of citrus fruits, avocados, pineapple, and some specialty crops. His main hobby is to learn more about the life habits of the insect enemies of his bees. He has 80 hives in the home yard and 50 in an out yard a few miles distant. These colonies averaged 173 pounds of honey per hive during the past year. Both yards are in wooded areas. The main sources of nectar is tree bloom; the most important is a leguminous tree known as "Tipa", **Tipuana tipu.** This tree, ranging up to 80 feet or more in height, produces great umbels of yellow bloom from October to December. Other sources include banana, citrus, and others in decreasing importance.

My next visit was to the apiary of Senor Walter Serrano whose farm is near a paved highway leading into Santa Cruz. Like other beekeepers I met, he is enthusiastic about beekeeping. He, as others who provide their colonies with adequate storage space, and requeen as necessary, have little trouble from swarming—rarely over two to three percent. Sr. Serrano has nearly 100 hives at present but is hoping to increase to at least 500 in a few years. Most beekeepers provide hive shade in one form or another. It may be an open shed with tile or palm thatched roof to shade the hives, or a vine-covered canopy, or individual shade boards.

At General Saavedra, which is some 50 miles to the north of Santa Cruz. I talked to Dr. Hans Platenius, Director of the Servicio Agricola Interamericano Experiment Station recently established there, and he said that it is planned to start an experimental apiary soon with his associate, Senor Wm. Kenning, in charge. Sr. Kenning who is a keen student of apiculture indicated that the project would include the keeping of records on blossoming periods of the various nectar sources and daily changes in hive weights, insofar as they relate to seasonal management. Such a record will be of inestimable value to beekeeping in Bolivia.

Beekeeping in Bolivia lends itself to almost any size of place; from the small city lot to the large farm enterprise of vast acreage. One of the largest places where I saw bees kept was "La Loma", a hacienda of some 55,000 acres, 4,250 of which are under cultivation, located about 40 miles north of Santa Cruz. Here, under the direction of the manager, Senor Juan Pereyra, a bee yard of 30 hives is maintained for honey production and pollination of citrus, and an experimental planting of sunflowers. As at most places visited, there was a neat, well-arranged honey-house and the hives were all painted. Interestingly, it is the custom to paint various distinguishing marks on the fronts of the hives, and this yard was no exception.

Honey is marketed largely in glass bottles of one quart size to the consumer, or in large metal drums having a capacity of about 700 pounds of honey to the processor for bottling and re-sale to the larger centers of population such as La Paz, Cochabamba, Sucre, Potosi, Oruro, etc. The honey sells retail in the Santa Cruz stores for 40 Bolivianos per quart bottle; which as Sr. Kempff Mercado ruefully remarked is only half the price which people pay for the same volume of beer. The only other method of packaging local honey in small containers that I noted was at Cochabamba. Here, the Fabrica Nacional de Conservas of this city puts honey in the same type of tins as it uses for canning various fruits. The

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The Right Diet for Bees*

By M. H. Haydak
Department of Entomology and Economic Zoology
University of Minnesota, St. Paul, Minnesota

In modern times there has accummulated abundant evidence that pollen is essential not only for the development of bee larvae but also for the growth of young bees. Contrary to general belief newly emerged bees are not mature. For their normal development they have to eat the proper food. When an immature animal grows, it increases in weight and the amount of protein in its body is augmented. Such average increase in the nitrogen content of five-day-old bees over that of newly emerged bees is 92 percent in heads, 76 percent in abdomens, 37 percent in thoraces and 64 percent in the whole bees. Newly emerged bees which do not have access to pollen cannot rear brood or conduct normal activities in the hive and their mortality is high. Although adult bees can rear brood when supplied sugar solution only, they do it at the expense of their own bodies and for a short period of time at that.

Farrar, in 1936, proved that pollen is necessary for bees in winter also. In his experiments, only those colonies which had abundant stores of pollen and honey went through the winter successfully and were strong enough in the spring to give a necessary force of bees for the main honey flow.

Unfortunately, natural pollen is not always available at critical periods and hence there have been many attempts to develop pollen substitutes. In order to eliminate the possibility of the bees having access to natural pollen these experiments have usually been conducted with colonies installed on pollen-free combs in greenhouses.

The first to try such an experiment was A. I. Root. He was able to induce the bees to rear brood by feeding them rye and oat flours. Later investigators (Parker, Whitcome and Wilson, Callenbach) concluded that feeding rye, wheat, oat, pea or buckwheat flour is not beneficial to bees.

Soudek fed various pollen substitutes to newly emerged bees and observed the development of their brood food glands. He thought that those foods, the consumption of which resulted in the normal development of these glands, may be considered satisfactory. Fresh egg albumen and dried yeast gave the best results. Peterka and Svoboda found that normal development of the brood food glands occurs also in bees fed soybean flour.

Schaefer and Farrar obtained very good results from feeding bees a mixture consisting of three parts of soybean flour by weight and one part by weight of dried pollen from pollen baskets. When soybean flour alone was offered to the bees the results were not so good.

For determining the value of any food for higher animals, the investigator offers the substance to the young individuals which are kept under controlled conditions. The changes in weight and in size of these animals are recorded, the general health is observed and their general activity is noted. In addition the quality and quantity of their offspring are determined.

Haydak applied the same method to the study of bee nutrition. He fed various foods under controlled conditions to young bees which had never eaten pollen and observed their growth (the changes in the weight and nitrogen content), their mortality, and the quality and quantity of their reared brood.

Colonies consisting of about a pound and a half of newly emerged bees were kept in screened compartments. The pollen substitute was mixed with honey and smeared into the cells of a pollen-free comb, which was placed in the nucleus before the bees were installed. A fertile queen was introduced into each colony. The bees always had enough food, sugar solution and water at their disposition. A control colony received a comb with honey and pollen.

The following food materials were tested: dried brewers' yeast, fresh whole milk, dry skim milk, whole egg, egg yolk, egg white, meat scrap, ground dried blood, digested tankage, fish meal; whole wheat, oat, rye, corn and pea flours; cottonseed, soybean, linseed and peanut meals; commercial casein; soybean flour, cottonseed meal, soy-

* Paper No. 809 Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

bean meal and linseed meal, each mixed with 20 percent dry skim milk by weight. Only those colonies reared brood which were fed pollen, dried brewers' yeast, meat scrap, cottonseed meal (plain and mixed with dry skim milk), soybean flour, soybean meal mixed with dry skim milk, whole egg, egg yolk or egg white.

Beekeepers may use pollen substitutes which are cheap and easily available. Although dried brewers' yeast showed the best results, it was quite expensive and therefore the next best, namely, soybean flour mixed with dry skim milk in proportion 4:1 by weight was recommended. It was used by beekeepers generally. When war caused a shortage of dry skim milk, it was deemed necessary to investigate the efficiency of some other more available food materials, namely, soybean flour supplemented by dried brewers' yeast, dried egg yolk, or pollen collected by bees.

The only aim of the previous experiments was to find out what substances are suitable for bees, without regard to their actual food value. In order to evaluate the food properly, one must give the same amount of food to each experimental animal and compare the results. It is inadvisable to restrict the quantity of food for bees because, when the food becomes scarce, the colonies are apt to change their brood-rearing activities and thus the results may be misleading. Instead of restricting the amount of food the substitutes and the pollen were diluted with equal amounts of honey so that the bees in the control pollen-fed colony, and in the pollen substitutes-fed colonies had the same amount of nutrients in the same volume of food. The colonies had an abundant supply of food all the time.

In order to evaluate more thoroughly the influence of tested foods on the brood-rearing activity of bees, the experiment was continued for three consecutive ten-day periods instead of one ten-day period as in the previous tests.

The appearance of the first sealed cell in each colony was noted and ten days later the total number of sealed cells and that of the unsealed larvae were ascertained. Total brood was counted at the end of each ten-day period. The food for all experimental colonies was supplied in the form of cakes made by mixing the same amounts of honey with the dry food. The results of the brood-rearing activities in this experiment are shown in Table I.

Table I. Total brood-rearing activity of experimental colonies.

Supplement to soybean flour	Total sealed cells No.	Total unsealed cells No.	Total brood cells No.	Brood production index for Index sealed cells	Total index
Skim milk powder	1278	1046	2324	1.0	1.2
Pollen	1238	702	1940	1.0	1.0
Dried brewers' yeast	2105	1740	3845	1.7	2.0

By assigning the numerical value of one point to the group with the lowest brood count and then by dividing the results of the brood counts from other groups by this lowest number a system of indices was established which gives a single numerical relation of the food efficiency of various pollen substitutes. From these results it is evident that dry skim milk is about equal to pollen as a supplement to soybean flour while dried brewers' yeast is about twice as effective as either the dry skim milk or pollen.

It is of interest to note that these results were confirmed by the field experiments of Wolfe in Nebraska. He divided installed packages into two groups one of which was fed soybean flour plus dry skim milk and the other soybean flour plus dried brewers' yeast. Later brood count revealed that the colonies of the first group had, on an average, two and one-half frames of brood, those of the second group had five frames of brood. This is exactly the same proportion as Haydak found in the Minnesota indoor experiments.

Although soybean flour when fed alone is adequate for rearing brood, the amount of brood is considerably below that reared when dried skim milk or dried brewers' yeast is added to soybean flour. The heat-treated soybean flour is an excellent source of protein of a high biological value and its mineral and fat contents are high enough to justify the assumption that these constituents are supplied in amounts sufficient for the development of bees. The same cannot be said of the vitamins present in soybean flour, which is rather low in riboflavin content. Its niacin (nicotinic acid) content is considerably below that

in either pollen or dried brewers' yeast.

In order to find whether the vitamin deficiency in soybean flour is the cause of its low food value for bees, a series of experiments were started in which the test colonies were fed soybean flour, soybean flour plus riboflavin **or** niacin, or soybean flour plus riboflavin **and** niacin. The results of these experiments are presented in Table II.

Table II. Total average brood-rearing activity of colonies fed soybean flour and supplements.

Food	Sealed cells No.	Unsealed cells No.	Total Brood cells No.	Index of food efficiency
Soybean flour	2195	2324	4519	1.0
Soybean flour and riboflavin	2105	2654	4759	1.0
Soybean flour and niacin	2607	2048	4665	1.2
Soybean flour and riboflavin and niacin	3174	2692	5866	1.5
Soybean flour and dried brewers' yeast	4744	2510	6254	1.8

It is apparent that niacin is the main limiting factor in soybean flour. However, the riboflavin content of soybean flour is rather low and an additional amount of this vitamin in the diet improved the quality of food still further. On the other hand, the addition of dried brewers' yeast produced still better results. Apparently there is some other factor or factors in which soybean flour is deficient and which is supplied by dried brewers' yeast. On the basis of these experiments, the following procedure for preparing pollen substitutes is suggested. Ingredients:

1. **Soybean flour** produced by the expeller method of soybean flour from which the fat has been extracted with a solvent and the flour heated afterwards. The fat content of the flour should be five to seven percent.
2. **Dried brewers' yeast**

Procedure:

Thoroughly mix the ingredients in the ratio of four parts soybean flour and one part brewers' yeast in preparing the pollen substitute. If a richer pollen substitute is desired, add five percent dried egg yolk.

The most convenient way of feeding pollen substitute to colonies outside is to offer it dry. The substitute should be placed in shallow trays (these can be made by cutting down the sides of corrugated paper boxes) and offered to the bees in a sunny and protected place in the apiary. Some of the mixture will be wasted by the bees around the collecting place, especially on windy days. This loss can be minimized by spreading canvas under the trays.

A more economical method of feeding pollen substitute in the apiary is in the form of sugar candy. The sugar syrup is made by **completely dissolving two parts of granulated sugar in one part of hot water by volume.** Thoroughly mix **one quart of sugar syrup with one pound of dry pollen substitute.** However, this formula can be modified to the thickness desired so that the candy will stay on the frame without running down. The above mixture will provide about three and one-half pounds of candy which consists of one pound of dry pollen substitute, about one and one-half pounds of sugar and one pound (pint) of water. To prevent drying, cover the candy with waxed paper and pat it down so that it will adhere to the surface. Allow to stand overnight so that the liquid will penetrate the dry particles of food. It is then ready for use. With a wide scraping knife or a hive tool spread the candy over a piece of waxed paper in a layer about one-quarter to one-half inch thick and **place directly over the cluster on the top bars of the hive so that the waxed paper is on top.** The inner cover of the hive should be inverted to provide space for the candy.

Begin by giving about a pound of the candy to each colony. Repeat feedings every seven to ten days increasing or decreasing the amount depending upon the amount consumed the previous period.

Once started, the pollen substitute (either the candy or dry material) **should always be available to the bees as long as natural pollen is lacking.** Any interruption in the availability of the pollen substitute may cause a setback in brood rearing. Sometimes the bees do not touch the substitute. Change its consistency or stop feeding. Maybe there is enough stored pollen in the hive.

In case of inability to obtain dried brewers' yeast, dried skim milk can be utilized in a proportion of four parts soybean flour to one part dried skim milk by weight. However, this mixture is considerably

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Apple Pollination in New Jersey

By Milton H. Stricker, Annandale, N. J.

Baldwin apples.—Photo by Paul Hadley, Philadelphia, Pa.

For a long time, beekeepers liked the pollination of apples the least of all springtime pollination chores. There was too big a chance of poisoning, thought most of the beekeepers, and too little cooperation from the fruit growers. Pollination of pear orchards, blueberry fields, and an occasional strawberry plantation were all thought preferable to taking undue chances with their bees.

Now the picture has changed. Beekeepers are more willing to supply apple growers since all the other aforementioned crops have spray and dusting programs which are detrimental to bees. Beekeepers feel there is less chance in the ten-day apple blooming period of getting bees poisoned than in the longer blooming periods of the other crops. The fruit grower is glad to get these bees and he is being more cooperative, giving the beekeeper notice, and in many cases allowing the bees to be moved before the last blossom drops, as he formerly demanded.

Circulating around at fruit growers' meetings, I find the apple grower is wiser. He is going to demand a better colony than ever before. Fruit growers' meetings have stressed the importance of a large brood area as a factor in efficient pollination. A bulletin by Robert S. Filmer of the N. J. Agricultural Experiment Station proving that colony activity is in direct proportion to the size of the brood area being fed has had its effect upon fruit growers. They have also been discussing the placing of colonies. There has been much argument but there are two schools of thought right now, one being the bees should be placed in large groups so that the increased activity of individual colonies promotes extra activity from the whole group. The other groups of fruit growers say they are going to space their colonies one or two under various trees throughout the orchard. They are especially partial to putting colonies under the trees that have abundant and vigorous pollen.

Fruit Growers are Beginning to Ask Questions

The fruit grower is still somewhat in the dark about what is in these colonies as they are moved into the orchard, but the beekeeper is going to find them asking questions and asking if they can be allowed to see in a colony and have a few words of explanation this year. It might mean a little more trouble for the beekeeper, but altogether it is going to do a world of good. The pollenculturist offering a standard product will get more business and he will get more consideration from the fruit grower after he explains the details and includes a few words about his problems.

Beekeepers are hoping to place colonies with as much brood as possible in the orchards. Most years after a good fall flow and a mild winter, seven full frames of brood, or the equivalent thereof, is a high average. Apples bloom usually in April during a cold and rainy spring where brood rearing results from stored honey and pollen rather than from gathered products. Most beekeepers confine the brood to one ten-frame standard hive, screen the top, stuff wire in the entrance in

Load of bees on their way to an apple orchard.

the evening and move the colony to the orchard, making sure, of course, the orchard is far enough away so bees will not drift home to the old stand.

Some two-story colonies are moved, but most growers will begin to realize that the top story adds nothing to their pollination and since colonies are only going to remain in an orchard ten days, it is a lot of "bugger lugging" for nothing.

If apples yield nectar copiously, and they don't always, colonies will come back pretty well jammed, maybe even some swarms will be lost before the beekeeper can super and lessen the congestion of these colonies. However, they feel a few swarms lost is a small price to pay if they can move a colony that is less bulky but giving the grower the full colony strength for that time of the year.

With the advent of parathion, beekeepers are quite anxious to get the bees out before spraying begins. This is the most deadly spray yet to hit New Jersey beekeepers and its residual effects are appalling, yet it looks like a blessing to the fruit grower.

The apple market during the winter of 1952-'53 has been good. The price has been fair to high and the market steady. It looks like the beekeeper won't have too much trouble selling his pollination service this year. Of course, this depends on his reputation. Just before World War II the apple growers were going out of business almost as fast as the Sheriff could serve a notice on them, but with the advent of the War, farms were refinanced and post-war prices have put the apple growers back on their feet again. An occasional one may be found driving a Cadillac, not quite as prosperous as the highly subsidized New Jersey potato growers were two years ago, but still standing firm and ready to grow another crop. If the New Jersey pollenculturist can stand quite as firmly and they were not such a loose knit group, possibly the standard price could be increased, but it now ranges anywhere from $5.00 to $10.00, and we have even found one gentleman renting his bees for $12.

One of the biggest problems of the pollenculturist in apple pollination is the competition of dandelions. Bees would much rather work dandelions than they would apple blossoms. Both bloom at the same time. He hopes there won't be any fields of this yellow weed close to the orchards he is pollinating. Both farmer and beekeeper have toyed with the idea of herbicides but this is a stupendous task with dandelions ranging over the roadsides and through pasture lands at this time of the year.

It takes populous colonies for apple pollination.

Colonies sometimes get jammed up and build too much comb.

Danger of Picking Up A.F.B.

Another problem, although the New Jersey Bee Inspection Staff is rapidly getting it under control, is the ease of picking up A.F.B. when moving into certain orchards in South Jersey. Some fruit growers bought bees a few years ago when they thought buying was cheaper than renting and these neglected bees now have to be cleaned up if disease is to be thoroughly eliminated from the area.

When the beekeepers' telephones ring and the growers say you can remove the bees now, there is a great exodus. It is usually raining; mud is ankle deep or deeper in the orchards, but the bees have to be removed. Sometimes the farmer's tractors are enlisted. Four wheel drive jeeps are a help and some beekeepers are now even moving their bees in the daylight as well as in the night to give them longer moving days. Their explanation is, "To heck with the field force. These crowded colonies will build up another field force but if they acquire poisoning, we may never be able to save them". Experiments in the last two years in one of the largest pollination outfits in this State show there was little difference in the surplus honey crop gathered later in the year by these colonies who lost their field force and the colonies who were moved at night with the field force intact.

Recently, seeing a fellow beekeeper trying to extricate his truck from a muddy orchard, I asked him why he stuck in this pollination business. He crawled out from under the vehicle, wiped some of the mud off his face and said, "Well, it's a mean job, but you get $8.00 from each colony and you collect your money as soon as your work is done. It looks better than the honey business to me where you take a chance of gathering honey, then you've got to sell it in a depressed market, and even when my crop and sales have been good, I haven't been able to gross this much per colony".

Our Cover Picture

Our cover this month shows an apiary in a perfect setting amidst blooming fruit trees. We regret that the photograph is not in full color, for the entire area surrounding the hive in the foreground was a blanket of purple violets.

With a Package of Dates

By Mrs. Benj. Nielsen,
Aurora, Nebraska

Honey date bars. — Photo courtesy the Kellogg Co.

Dates, like honey and pumpkin, are regarded by many cooks as a seasonal food. At the Nielsen's, however, we especially like the way dates team up with honey, and honey date nut bread is a year-round favorite. With this honey-way goodie aging and mellowing in its snug aluminum foil wrapping, we are always ready for guests who drop in unexpectedly. Soft butter or cheese for thin slices and we have yummy sandwiches in a twinkling. Tea, hot or iced, rounds out an afternoon chat or an evening foursome.

Good keepers (if hidden) are these honey date bars. Grand when freshly baked, they acquire an inimitably good flavor when allowed to age. Roll in powdered sugar just before serving, for an added fillip. Serve with an assortment of honey canned fruits, or fresh fruits lightly drizzled with honey.

Honey-date filling is a delight on crisp salty cheese-flavored crackers! A real quickie.

Honey Date Filling

Two-thirds cup ground dates, ⅓ cup ground pecan meats, 1½ tablespoons mayonnaise, 1 tablespoon lemon juice.

Honey Date Bars

Two eggs, ¾ cup honey, ½ cup sifted flour, 1 teaspoon baking powder, ¼ teaspoon salt, ½ cup ready-to-eat bran, 2 cups chopped dates, ½ cup chopped nutmeats.

Beat eggs until thick; fold in honey. Sift together flour, baking powder, and salt; stir in bran, dates, and nutmeats. Add to first mixture, beating well. Spread batter ½-inch thick in greased shallow pan, 9 x 9 inches. Bake in preheated moderate oven, 375 degrees F., about 30 minutes. Cut into bars while warm. Sprinkle with powdered sugar, if desired. Yield: 32 bars, 2¼ x 1⅛ inches.

Honey Date Pudding

Two cups coarse dry bread crumbs, ½ teaspoon baking powder, ½ teaspoon salt, 1½ cups chopped dates, ½ cup chopped nuts, 2 eggs, ⅓ cup honey, and ⅓ cup water.

Combine first five ingredients. Beat eggs, add honey gradually, then the water. Add to crumb mixture. Pour into greased mold, cover and steam 45 minutes. Serves six.

Honey Date Parfait

One-half cup chopped dates, 1½ cups water, ¼ cup honey, ¼ teaspoon salt, 4 egg yolks, well beaten, ½ cup orange juice, and ½ cup cream whipped.

Cook dates in water 20 minutes, add honey and salt, and cook 10 minutes longer. Pour slowly over egg yolks. Cook over boiling water until thickened, stirring constantly. Chill and add orange juice and whipped cream. Freeze until firm. Makes 1 quart.

Honey Date Bread

Three-fourths cup peanut butter, ¼ cup honey, 1 egg, beaten, 2 cups sifted cake flour, 3 teaspoons baking powder, ½ teaspoon salt, 1 cup milk, and ⅓ cup chopped dates.

Beat peanut butter and honey together, add egg. Sift flour, baking powder and salt together and add to first mixture alternately with milk. Fold in dates. Fill greased mold ⅔ full, cover tightly and steam 2½ hours. Makes 1 loaf.

Live and Learn

By Propolis Pete

This year I am going to get me some section comb honey or bust. Every year I faithfully put on a couple of supers, but always with the same result. That is, nearly always. Last year I almost made it, but nears don't count. Last year the bees drew out the foundation in the sections, but left them empty of honey. I think that what happened was that there was a good flow until the drought hit, and then it shut off like turning a spigot.

If the truth must be told, I think that it is mostly my own fault that I never have been able to get any at all. You see, I am always behind the demand for extracted honey. and never have felt that I could afford to sacrifice a good colony for the speculation. This year I have enough colonies so that an average year should make me hustle a bit for a change to dispose of the crop. So, ever since last August, I have been grooming one powerful colony and this year will get my sections or ruin that colony.

I know a couple of beekeepers around here who produce cut comb honey. I also know a couple who get a few sections,—not enough to pay in terms of extracted honey, but for the novelty of it, or to save the cost of extracting equipment and the labor. From the way my bees work up to the middle of June, I know that I could produce cut comb. I have never tried it, because somehow the wooden section box seems to be the most attractive part of the finished product. No matter how you do it, cutting up the combs, letting them drain and packaging them is a messy job that spreads all over the workshop.

So, if I don't get my sections filled this year, I'll have to call it quits, and see if I can find somebody who can sell me sections to satisfy those of my customers who want it. One good colony should give me enough sections to fill my own needs, and perhaps have some left over for the good neighbors and friends who are constantly asking for it. Beyond that, if it works, I can go after it for real next year.

By the time this is printed, the season should be well on its way nearly all over the country. For me, the first of April generally means soft maple, elm, and crocus. There is a surprising amount of crocus around here. Whether or not it is just because the natives plant a lot, I don't know. I do know that when the crocus blooms, and the weather is mild enough for the bees to go after it, they bring in a surprising amount of pollen that is exactly the color of the pollen on my crocus. Incidentally, the bees go for my crocus to the extent that sometimes one sees three or four bees in the one blossom.

After these, the pussy willow starts. Reading back through the diary of plant bloomings that I have kept for the past 18 years, I find that once it was blooming on April 1st, and one year it was the 1st of May before it came in. I would say that an average would be about April 10th. I don't know what this year will bring. At this writing in early March, the pussies are well out. Just as the willow is passing out, I get a very dark orange pollen in vast quantities. I think it is from a low plant that blooms in waste places. The natives here call it "pussy toes" and it does look something like a kitten's paw. I think the real name is Antenaria. There is lots of it, and I have seen bees on it gathering the same color pollen as I see coming into the hives.

When I tour the neighborhood and see the pasturage in the early spring, I often wonder what sort of crops I would get if I had the same volume of nectar-bearing plants later in the season. This spot could easily support 70 colonies during April and May. There is a fine succession of plants, some of which you have never heard of, that ends up with a lot of black locust that blooms around May 30th. After that, it's every man for himself.

I suppose some will say that I should take advantage of this by building up the colonies very early with heating units, artificial pollen, and syrup. Maybe I should. Maybe some day I will. Maybe, after going to a lot of expense, labor, and exasperation, I will find that the flavor and color of this early honey wasn't worth going after. Maybe also, I can go into the swarming business as well as the propolis business.

Second Glances

C.M. Isaacson

Saving only strong colonies in spring examination is the wisest policy—if one can bring oneself to do it (page 137). Weak colonies generally die out, or require an excessive amount of time to build them up. There is one exception—when one can see that most of the bees are recently emerged ones, and the brood area is compact and good. These will often do surprisingly well without help, as long as they have plenty of pollen and honey. All in all, Mr. Stricker's account of that first examination on a sunny March day will probably cause innumerable cases of "bee fever".

Successful shipment of package bees (as distinguished from production) is not a complicated matter if certain fundamentals are kept in mind. M. S. Fortune's short "history" is quite interesting, especially the description of the horse and wagon days (pages 139-143). They had their difficulties. Now, with light cages supplied with well-made sugar syrup in a feeder can (so it does not clog), the main danger is excessive heat enroute — assuming of course, that the cages have been filled with healthy young bees and queen. With proper care, results are usually excellent.

Present day Mexican beekeeping, though not overly extensive as yet, is becoming as modern as in any country (page 143). With favorable natural conditions and increasing production, Mexico may soon be a force in world beekeeping.

Friction-top pail feeders are good in cold weather especially, being warmed as they are by the heat from the cluster—and immediately above, so they can reach it as needed (page 147). Make sure, though, that your lids are tight, and that your pails have no leaks in them, or you may have a badly messed up cluster. Division-board feeders are also good, as they can be placed close to or in the cluster. Entrance feeders have more faults than good points, to my mind. Dry sugar feeding is fine, unless, as Mr. Olsen says, one wishes to feed sulfa for disease control.

Removing bees from a cellar is decided primarily by the weather (page 148). Towards evening is the preferable time of day, for it enables the bees to quiet over night —doing away with a mad rush out of the hives and consequent drifting. When I wintered my bees in a cellar, I tried to do this, or else picked a cool, cloudy day when the bees would not fly. If one can place them among shrubbery, it helps them to locate their own hives.

Handling colonies in groups rather than as individual hives should certainly speed up moving. If one operates on a scale that makes the purchase of the equipment possible, the tractor lift idea should be fine. An entire yard could be loaded in a few minutes (page 150).

Waffles are a universal favorite—and Mrs. Nielsen's honey-bran recipe should make super ones (page 152). They are good eating with honey, ham, bacon—and have you tried them with cheese? You may have to double the recipe!

Setting the upper story in front of a colony when examining the lower one (or the supers in front, later on during the flow) is a wise plan—most of the flying bees will enter there instead of bothering the operator (page 154).

Simplified apiary management becomes more of a necessity as production costs and income come closer together (page 155). I know that I have omitted doing many things the past few years that I used to think essential. Suit your management to your conditions and locality—and deny yourself the luxury of examinations not needed.

Requeen only when necessary, says Propolis Pete. Right you are, Pete. Unless certain conditions make it necessary to do it myself, I let the bees do their own requeening. With two-story brood chambers, in my locality at least, quite a large percentage will supersede in the fall (up to 75-80 percent some seasons). It saves time and labor—to say nothing of the expense of purchased queens—and the results are good (page 159).

Experiment cautiously, says the Editor (page 160). It is excellent advice. I think most beekeepers love to be "first with the newest" (that goes for most humans, I guess) but just in case that new device or method shouldn't be as good as it promises, go a bit easy until you have proved it for your own purposes.

A Talk to Beginners

By M. J. Deyell

Well, here I am again, having to meet the dead line for my April talk. It isn't that I object to writing these talks, in fact, I enjoy it but I just hate to get started. It is something like getting up in the morning when my alarm goes off. I do hate to get up but after I am out of bed I am glad the break is made.

Do the Right Thing at the Right Time

One day last fall, I did the wrong thing at the wrong time when I was feeding two colonies some sugar syrup. An earlier talk mentioned wintering a few colonies in single story brood chambers to see how they compare with colonies in double story brood chambers this coming season. I took a few pails of syrup to this yard during late November. The weather was somewhat cool so I did not put on a bee veil. I found, to my surprise and dismay, that the atmosphere was not cool enough to keep the bees in the hives. The bees in one colony came out of the entrance and attacked me in mass formation stinging me all over my head. I then recalled that this particular colony had been vicious during the past season, the only colony in the yard that had caused me trouble. That queen will be replaced this spring if I can find her. It is sometimes difficult to find such a queen, and the bees may have to be run through a queen excluder in order to find her.

In order to do the right thing at the right time in manipulating hives of bees, it is very necessary that we know something about bee behavior. Some people seem to think they can acquire this knowledge through reading books on beekeeping. Obviously, it is quite necessary to read the best literature but it is also necessary to handle bees in order to combine theory with practice. We would never learn to drive an automobile by reading the directions. We have to get behind the wheel and actually drive the car. We learn by doing. The same is true in beekeeping.

Sometimes a beginner beekeeper may happen to do the right thing at the right time. Quite often a beginner does the wrong thing at the wrong time.

Jack Deyell

Getting back to bee behavior, we learn from experience, or otherwise, that it is perfectly possible to handle bees quite easily under some conditions as, for example, when the weather is warm and the bees are carrying in nectar and pollen. The reason for this is that the bees are absorbed in their work and may not pay much attention to the owner as he handles the frames, provided he does not make any quick moves or jar the hives or the frames unnecessarily.

On the other hand, a normal colony of bees is likely to resent being handled during cool weather or early in the morning or late in the evening at which time all of the bees are at home and even though smoke is applied the bees are apt to sting, especially when combs are removed from the hive.

In some instances beginner beekeepers have installed one or more packages of bees and have handled them during the middle of the day, as directed, without being stung. In due time these packages have developed into very populous hives of bees. A strong hive of bees appears to be more conscious of its ability to defend itself than a weaker hive of bees, and rightly so. The owner of strong colonies that have been developed from packages may decide to check into the colonies some morning when the weather is rather cool. He is likely to get the surprise of his life because the bees will resent being handled when the weather is cool while they are all at home. If the owner does not

happen to have his smoker going so that he can apply plenty of smoke, at the proper time, he is apt to get badly stung. Furthermore, the bees may cause some trouble among neighbors.

May I again urge beekeepers in cities, towns, or urban localities where people live near by to manipulate hives of bees only during the middle of the day when bees are flying well. Once in a while there may be a dearth of nectar at which time bees are easily aroused and are likely to cause trouble. However, when bees are carrying in nectar or pollen they can be handled quite easily.

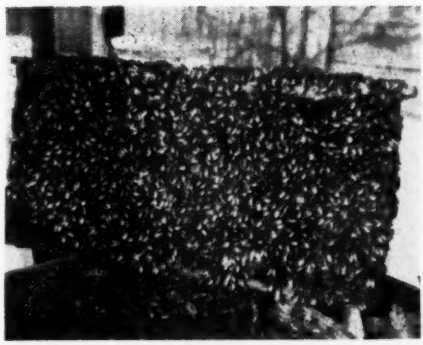
How to Open a Hive and What to Look for

One needs a bee smoker, a bee veil, and a hive tool. Some beekeepers use bee gloves. I like to wear gloves because they keep the propolis off my fingers. The smoker should be well lighted before putting on the veil, especially if it is a cloth veil which is easily burned by flames from a lighted smoker.

Never stand directly in front of the hive when bees are flying. If the hive has an outer cover remove it, then insert the hive tool under one corner of the inner cover and blow some smoke through the small opening. Wait a few seconds, remove the inner cover, then apply some more smoke over the top of the frames, but not too much.

When all of the combs in the brood chamber are to be examined, it is customary to remove the first outside frame nearest to you. In order to do this, shove the hive tool down between the end bars of the frame and the hive wall, then pry the frames over toward the opposite side. Next, separate the nearest frame from the adjacent one and carefully remove it. The queen is not likely to be on this outside comb but occasionally she may be. This comb should be stood on end at the front corner of the hive in such a position that it does not obstruct the entrance of the hive when the bees are flying in and out.

The reason for placing this comb at the front corner of the hive instead of at the back is that should the queen be on this comb and should she decide to leave the comb and crawl on the ground, as she sometimes does, she can and usually does gain entrance to the hive. If the comb were placed at the back of the hive, the queen might be lost in the grass and might not find the entrance to her hive.



A comb with adhering bees removed from a populous colony during a cold winter day. Picture sent by M. W. Kosanke Ripon, Wisconsin

Do Not Make Any Quick Moves

After examining the comb and standing it in front of the hive, the next comb should be removed and examined, then placed back in the hive at the nearest side. The remaining combs should be examined in like manner, then placed back in the hive up against the others.

Before placing the first comb removed back in the hive, the frames in the hive should be pushed over, all at once, to the farthest side to make room for the first frame removed. This prevents killing bees. When it is necessary to examine the bottom brood chamber of a double-story hive, the upper chamber, after being examined, should be placed criss-crossed on the inverted cover of the hive. This procedure avoids killing bees that are clustered on the bottoms of the frames. If this upper brood chamber were placed on the upper flat surface of the cover, many bees would be killed.

The lower brood chamber is examined in like manner, then the upper chamber is placed back on the hive where it belongs. We are assuming that the double brood chamber is used. There are a few beekeepers who winter colonies in single-story hives. We feel that it is an advantage to winter each colony in a two-story hive. The upper story, or brood chamber, is in reality a food chamber but becomes a brood chamber in the spring as the bees use up the honey in this upper chamber and convert it into brood. The empty combs that become available are then used by the queen for brood rearing.

XUM

Conditions Within the Hive

In the latitude of Northern Ohio, colonies should have brood in from four to six combs during the middle of April. We have had strong colonies with brood in 10 or 12 combs the last week in April. Such colonies are likely to store some surplus honey from fruit bloom and dandelion if the weather is favorable. Farther south colonies have reached full strength and in some states surplus honey has been stored.

The combs near the side of the brood chambers should contain a considerable amount of sealed honey. Combs in the center of the brood chambers should contain eggs and brood in all stages, sealed and unsealed, as well as honey in the upper portion of the combs.

Cells adjacent to the brood will contain pollen of many colors. Balls, or pellets, of pollen may be seen on the legs of worker bees. This pollen is placed in the cells of the combs by the bees to be used later as larval food. Fresh nectar may be seen shining in the cells of the combs.

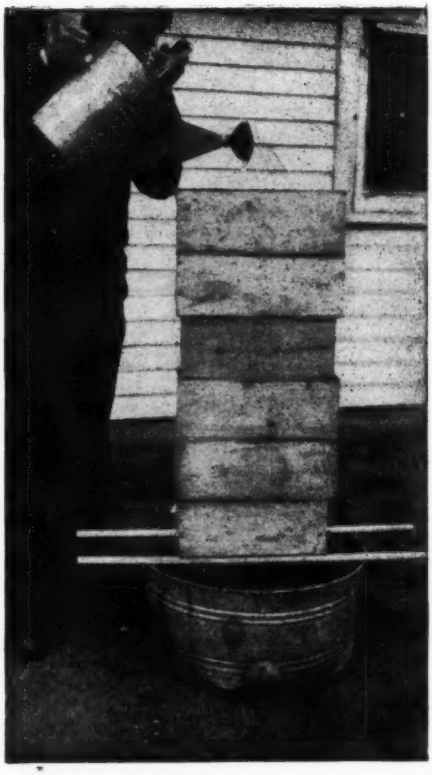
As colonies are examined it is comparatively easy to estimate the amount of sealed honey in each hive, considering the fact that a filled standard comb contains approximately five pounds of honey.

Three Kinds of Cells

A comb should consist mainly of worker cells which are approximately one-fifth of an inch in diameter. Drone cells are about one-fourth of an inch in diameter and are usually found in the lower portion of the comb and easily detected because they project somewhat beyond the depth of worker cells and look like bullets projecting from cartridges. Queen cells appear before a swarm issues and are usually built along the lower edge of the comb. They are easily recognized because instead of being horizontal as are worker and drone cells, they are nearly vertical and resemble peanut shells in shape.

Do Not Let Bees Starve

Experienced beekeepers have tried to tell us that there should never be less than 15 pounds of sealed honey in each hive at anytime, especially during the spring months when an abundance of honey is needed for brood rearing. Fifteen pounds of honey would be the equivalent of three filled standard combs. When the amount of honey in the hive gets below 15 pounds, the queen is apt to curtail her egg laying and this in turn reduces the population of the hive, which in turn reduces the crop of honey secured because the maximum amount of bees are not present at the time honey is available.



Piling the packages of bees on top of a tub and pouring the warm syrup from a sprinkling can is the best and most economical way of feeding the bees.

A Word About Installing Package Bees

It is necessary to feed package bees sugar syrup before they are put in the hives. This makes the bees quiet and easy to handle. A few packages can be fed by painting the wire screens of the shipping cages with a brush dipped in sugar syrup.

A few years ago we ran onto a convenient method of feeding packages after they are received from the express office and before they are put in the hives. This method can be used where quite a number of packages are to be installed. The accompanying picture shows packages of bees piled flat-wise over a

(Continued on page 248)

From the Field of Experience

Feeding Dry Sugar

By Elmer G. Carr, Pennington, N. J.

Left: Dry sugar poured into a rim on top of inner cover with hole open, in April. Right: Same hive one week later.

Gleanings for January, 1882, quotes honey in the Cincinnati market at 8 and 11 cents a pound. The same journal for January 1953 quotes for the midwest 11½, 12, and 13 cents a pound. Not much advance in price when the increased cost of production is considered. This seems to emphasize the need for larger crops or reduced production costs, or both.

Where feeding is practiced perhaps a change in the common method of using sugar syrup may result in reduced labor costs.

On page 18 of Gleanings for February, 1874, we read: "To such of our Southern friends and others who have their bees flying when this reaches them, we would say, commence giving them dry sugar as soon as they will use it; place it in the sun but out of the wind and get them to building up as fast as possible".

Then on page 8 of January, 1901, Gleanings, Dr. Miller in his Stray Straws says, "Privately I want to say to J. E. Crane, when you try sugar and water for feeding, don't forget to try a few colonies by pouring dry sugar in the feeder and then pouring wet water on top. The percolating idea has all passed away and it's just possible the mixing in advance idea may go to help keep it company".

It should be remembered that Dr. Miller was speaking of a wooden feeder on top the hive, not a can.

On page 38 of "Alexander's Writings", we find him recommending a two-inch rim on the hive with loaf sugar, moistened, for winter feeding.

At one time the writer wintered a cluster of bees which had been driven from a box, on empty comb with loaf sugar on top. No moisture given.

In feeding queen mating nukes I have had better results feeding dry sugar than when giving combs of honey, sugar syrup, or Fuller candy. Working over the dry sugar seems to stimulate the bees. Whether the extra activity uses up an undue amount of their energy is open to question. The stimulation also results when Fuller candy is fed but there seems to be no good reason to go to the extra work of making the candy if good results can be had with less labor. There is also the advantage of dry sugar in that there is no robbing danger.

In making up mating nukes at an outyard, I have been successful by using dry combs when no stocked combs were available, the required

number of bees shaken from combs so they have some honey in their sacs, and a ripe queen cell. Leave closed 40 hours and move to mating yard some distance away, so the bees would "stay put". If available, queenless bees can be used and no precautions are needed to make them accept the new conditions.

One successful beekeeper of my acquaintance simply pours dry sugar on the inner cover. Of course, the bee-escape hole is left open, in fact, it is never closed. The bees take down the sugar as temperature conditions permit. Doubtless this would not give good results where bees are very short of stores and temperatures remain for too long a time too low for the bees to break cluster and get to the sugar.

Wanted: Pioneers

By I. F. Miller, Overland Park, Kansas

Here in Kansas the need for bees is great. Kansas is usually thought of as a wheat state, and the first impression is usually that Kansas is not a state needing bees. Let me quote you a few figures on this that will amaze you. Of the 26 counties in the central and northwest part of the state the estimated need for colonies for honey this year is an average of 783 to the county and an estimated 2,453 to the county for maximum pollination. Some counties need more than others. For example, Phillips County is shown to need 4,000 for honey and 12,120 for pollination. This is just one county. These figures are from the Kansas State College. These are only representative figures of the number of hives needed for farms and orchards.

In many places, as in the locality where I live, there are rather large stands of timber. It is in these stands that the "wild bees" live. However, these are being cut down more and more as farming practices expand. Because of this cutting and the destroying of natural living places of the bees it means only one thing—that the beekeeper has to expand.

There is a desire for the expansion; however, there are not the facilities to do so. By this I mean that there is no program set up through the 4-H or FFA in many sections of the country to take over this teaching work. This task then falls to the beekeepers.

Farmer education must be brought to the front. Many farmers are still of the old idea of letting you place hives on their land for one half of the honey. It is a known fact that the beekeeper can no longer afford to do this. Some years ago a hive sold for $3.00 complete but now with a hive costing from $7.00 to $10.00 it is unsound for a person to move this equipment to share the honey with some one who has no investment in the hive.

The farmer must be shown that he will derive the full benefit from the bees in that the pollination they perform will more than pay for the hives being located on his ground. Many keepers make the larger percent of their income from bees for pollination work.

Pollination is a field that is well established in certain parts of the country. However in other sections, like the one in which I live, it is still a relatively unknown practice. However, as times progress and things change this will also be changed.

A few of us are going to have to get out, talk to the land owners and show them how the bees will put better crops in the fields. Likewise we will have to do a lot of studying to learn the farmer's side of the story and talk to farm equipment salesmen to learn how to harvest the crops. If you so inform yourself then you will be better equipped to go into the field and talk to the prospective purchaser of your wares, namely pollination.

Getting good help to work with you is in some parts of the country impossible. Here is another field for you to explore. Boy Scouts, and other such organizations, very often have sources of interest in the keeping of bees. These sources will have to be tapped and investigated one at a time.

Making a Good Impression

One of the things you must do yourself is make a good impression. This impression must be made when you contact the prospective owner of the location desired. A well-groomed appearance will help a lot. Talk to the man on his own level and try to see his side of the story.

Second, when you have made the arrangements to bring the hives in, do it as quickly as you can. If you say you will be there Saturday morning, be there! When you come in with the truck, or trailer, stay on the road that the farmer uses. If in doubt, ask permission to go over a road, and also prior to going through a field ask if it is safe and satisfactory with the owner. This could save a tow-truck call.

Have your equipment looking good. Good-looking equipment will leave the impression that you know what you are doing and that you are capable of doing it.

Set the equipment up in neat orderly fashion. Level up those hives so that they don't look like they are about to fall over.

Above all, bring in only good clean healthy hives of bees. Leave the junk at home! Also, if you live in an area that requires a health certificate for moving bees, be sure you have it. If in doubt check with your state inspector and find out.

This work is all new to some of us. We need to clear information with one another and establish good relations between beekeeper and farmer.

One little suggestion: Next time you go for a drive in the country take along a notebook and every time you see an orchard, take note of its location, also see if there are any bees in it. If not, this could easily be a contact. Remember, no one is going to help you nearly as well as you can help yourself.

This is a new field in a lot of sections, it is still not established but it will be some day. It is up to each of us to pioneer the whole ground work for the industry where we live.

A Profitable Hive of Bees

By J. E. McKee, Alpine, N. Y.

The most unusual thing about the accompanying illustration is that it shows $40.00 worth of fancy buckwheat and goldenrod comb honey above three stories of brood. This same colony produced close to $100. worth of comb honey each year for three successive years. I produced comb honey exclusively in half-depth frames and sold it that way, $1.00 per frame for the past 15 years, except that last year I got $1.50 per frame for small lots.

The location has an abundance of natural pollen at all times, but the nectar supply is only fair. An interesting fact is that this colony produced only one super less during the worst year than it did in the best year. I think this proves that extremely populous colonies, good morale, and supering at the right time, are of more importance than locations.

I am strong for perfect brood combs. As soon as the brood combs reach two years of age and toughen up I space them nine to the brood chamber. I winter in three stories and leave at least 100 pounds of honey and natural pollen on very strong colonies.

We who remember the depression of the 30's know what no-money-in the-bank, or the pockets, did to our morale, and should leave the bees a superabundance of the fruits of their labors so they can proceed with confidence and efficiency. Unfortunately, judging from the small and commercial bee yards I have examined in many states, altogether too many bee men seem to think that keeping their bees in a perpetual state of near starvation is all right.

Colony that produced $100.00 worth of honey for three successive years.

Editorials

The American Honey Institute is due a word of commendation on this its 25th anniversary and especially Mrs. Harriett M. Grace, its Director, for the excellent service rendered to our industry in honey promotion work during the years. The sailing has not always been smooth since the Institute was launched by a few far-seeing people a quarter of a century ago in Chicago, but steady progress has been made. May the next 25 years of growth surpass our fondest dreams!

* * * * *

Honey-For-Breakfast Week Special emphasis on honey for breakfast during the week of April 5 to 11 is sponsored by the American Honey Institute of Madison, Wisconsin. It presents an opportunity for beekeepers over the country to advertise their products and to take full advantage of the help the American Honey Institute is prepared to give in supplying suitable printed material in the way of cards and folders, at a nominal cost.

Some people seem to think that honey is a cold weather food. Honey is a carbohydrate and energy food and is needed during the spring, summer, and fall months, as well as during the winter.

During recent years, according to some of the large honey packers, more honey has been sold during the summer months than was the case some few years ago. Honey should be made a year-around food.

We suggest that during HONEY-FOR-BREAKFAST WEEK, beekeepers who have honey to sell, make a special effort to move it, either from their apiary houses or through grocery stores, using appropriate printed matter furnished by the American Honey Institute. Let's make this a HONEY of a BREAKFAST WEEK.

* * * * *

"Be Prepared" This is the slogan of the Boy Scout organization and it is a good one for beekeepers to adopt.

We cannot hope to secure the maximum crop of honey unless we formulate some sort of a program in advance of the active season. We should plan our work and work our plan. All too many beekeepers approach the season with a sort of hazy idea of what they are going to do and why. In some instances a number of swarms issue at the beginning of the major honey flow before some beekeepers actually wake up to the fact that they should have had supers on the hives before the swarm issued, in order to avoid congestion within the hives which is the main cause of swarming.

Strong colonies of bees do require adequate comb space which means putting on supers a little in advance of the time they are actually needed. It is amazing what a very populous colony of bees will do in storing surplus honey in a short period of time when conditions are right.

In the matter of visiting outapiaries, some distance from the home plant, it is quite essential that trips to these yards be scheduled intelligently so that the necessary equipment for the outyard may be taken along at the right time. All duplication of effort should be avoided so far as possible. Never run empty trucks to an outapiary, especially at the beginning of the season.

It is difficult, if not impossible, to foretell a good honey flow. In some instances, when we think there is going to be a good crop of honey it may not materialize. In other cases, a honey flow may creep up on us when we are not expecting it.

If we are prepared for a honey flow and it should not materialize because of adverse weather conditions we cannot be blamed for not having done our part. On the other hand, if we are prepared with strong colonies of bees at the beginning of the major flow and an ample number of supers to hold the crop we will experience the thrill which comes from the realization that we have done our part in being prepared.

* * * * *

Maximum Returns from Packages It is possible, with a good package of bees and queens installed at the proper time and given intelligent management while they are building up to normal sized colonies, to secure good returns the same season. It is possible during a season favorable for honey production to harvest a honey crop in less than four months after the packages are installed. That is getting quick returns on an investment, provided,

of course, the honey can be sold or turned into money without any difficulty.

On the question of just how packages should be installed, there appears to be some differences of opinion. Some have suggested a uniform method of shipping packages. This would apply to the type of shipping cage used, also the manner in which queens are placed in the shipping cages and the method used for putting packages into hives. It seems that commercial beekeepers each use a method that they have worked out during the years which appears to be satisfactory.

Because of the difference in weather conditions in various sections of the country while bees are being shipped it would be difficult to advocate any certain method for installing packages. For example, in Canada, shipments of bees sometimes arrive during a snow storm in which case it is necessary to place the packages in a dark cellar for a few days or until the weather turns warmer. In the meantime the bees are fed sugar syrup.

For the beginner beekeeper it seems essential to keep at least two things in mind, namely, having the bees well filled with thin sugar syrup before they are put into hives, and to keep the bees well provided with food until nectar from natural sources is available in quantity.

* * * * *

"Progress in Nosema Control" Nosema, an adult bee disease, has plagued beekeepers, especially in parts of the North and South, for years. The organism is a protozoon which attacks the digestive system or more particularly the chyle stomach of adult bees.

The following from the February 1953 issue of "Wisconsin Horticulturist" sounds hopeful for the future:

"We are pleased to be able to write that it looks very much as if the Nosema disease problem may be solved in the near future. The Central States Bee Culture Laboratory in Madison is carrying on a test of the new antibiotic fumagillin. It will be tested on a large scale with package bees this spring and also on over-wintered colonies.

"It appears that fumagillin does not cure bees that are infected or sick with Nosema, but will prevent the spread of the disease and prevent young bees from becoming infected.

"At the present time the material is quite expensive but if it proves to be of value it will no doubt be produced in larger quantities and will be lower in price. At any rate we hope it will be a practical method of controlling this very serious disease. Also we congratulate the staff of the Central States Bee Culture Laboratory upon their leadership in calling to the attention of beekeepers the seriousness of the disease and in efforts at finding control methods."

* * * * *

When Honey Price Support Ends—What Then? The present Government Honey Price Stabilization Program which was put into effect in 1950, has rendered a worthwhile service to our industry, in raising and stabilizing the price of honey.

Whenever the Federal Government undertakes to support the price of any commodity, it puts itself in the position of acquiring a stock of that commodity. In an attempt to avoid the accumulation of a surplus, the Department of Agriculture has set up a division known as Foods Trade Division of the Food Distribution Branch, which is charged with the responsibility of helping an industry to merchandise its product so that the government does not acquire a huge surplus of that commodity.

Last fall with cooperation between the American Honey Institute and this Division, a splendid piece of work of publicizing honey at the point of sale was accomplished. A similar program on honey promotion is again planned for this fall, the work to start in July and reach its peak during National Honey Week in October.

Our industry has been warned time and again that Government aid will eventually cease. The question that disturbs all who do any serious thinking is, what type of program should be developed by our industry to maintain or even raise the present price level when the government discontinues its price stabilization program.

It is hoped that the officers of the American Beekeeping Federation, with Henry A. Schaefer as newly-elected president, may come up with the answer. Any suggestions will be appreciated.

XUM

From North, East, West, and South

NORTHERN CALIFORNIA, Feb. 28

Weather: The weather is a dry subject these days in northern California, because we have had some 40 days or so without any appreciable rain and during a time when we should have three or more inches. In fact, the paper states that this has been the driest February in more than 104 years. This will mean a short season from the native nectar and pollen plants and a lowering of the water level underground unless the situation is remedied by above average rains during the remainder of the "rainy season". Package bee and queen breeders will not like a rainy spring, but let's hope for rain for the greatest good of all.

Condition of Colonies: The rather open winter, following a better-than-average honey season, has left the bees in excellent shape, especially where they were given young queens and left with plenty of stores. The fruit trees have provided an ample supply of pollen so far, but as they are blooming ahead of schedule, there may be a shortage of pollen in May and June unless, of course, we get an ample amount of rain to keep the native pollen plants in normal growth.

It is possible to winter over four-frame nuclei in our valley locations, without the provision of any protection from the weather, if the bees are provided with an adequate amount of stores. We have advised our package bee producers consistently, to take advantage of this situation to carry over a portion of their nuclei and young fall-reared queens to meet their early spring requirements for package bees and queens. Some of the shippers are doing this to the advantage of their customers. They can also divide the nuclei in late March and thus make up a large number of queen-rearing units without breaking up any of their supporting colonies.

Pollination Problems: The overproduction of Ladino clover seed and the reduction in the price of legume seed can be expected to result in a reduction of the acreage devoted to seed production and, possibly, to the lowering of the demand for colonies of bees to render the pollinating services. One beekeeper has reported that one of his seed grower customers has asked for only one-third of the number of hives used last year and will "experiment" with the use of but one colony per acre instead of three or four. The beekeeper expects an increased yield of honey in that location and a reduction of seed produced unless, of course, other beekeepers over-stock the territory for the purpose of honey production—in which conditions will be about the same as last year when he placed three colonies per acre for pollinating services in the same area.

Extracting Room Standards: This subject probably is being cussed and discussed by more beekeepers in California than any one other topic, not even excepting hive hoists. All of a sudden, it seems, inspectors from county, state, federal (two sources or branches), and the army are interested in seeing how honey is produced and what standards of quality and of cleanliness are being maintained at the producer and handler levels. The California State Beekeepers' Association has an active research committee which has held three meetings so far and soon will have available suggestions for minimum standards of honey extracting plants which, it is hoped, will meet with the approval of all agencies that have supervision of food processing plants and still be within the economy of the beekeeping industry to maintain. Those who are now repairing or reconverting their present honey houses should inquire into this subject before making any major repairs in order to incorporate certain fundamentals which are deemed essential for the production of honey that will grade no lower than U. S. Grade C when the honey is run into wholesale containers.

Honey is a delicious food that is without parallel when stored in the comb and can be extracted and maintained by the producer under conditions which will not impair its fine natural qualities. A majority of our honey producers will

have to make some repairs and changes in their present system of honey-house management in order to comply with the minimum standards of honey handling but the industry and the individual producer will be better off for the changes.

The minimum standards will include, probably, an extracting room separate from the general honey house and work shop, devoted entirely to honey extraction during the extracting season; clean floors and walls; screened windows and doors; adequate water supply; a honey sump between the extractor and the honey pump; a comb-receiving room to free the combs of bees before transfer into the extracting room; a honey tank room for storage and clarification before the honey is run into wholesale containers; normal sanitary facilities for all workers, and other features which are present in many up-to-date honey extracting plants.

Economics of Beekeeping: A project is being considered to determine the economics of beekeeping on a colony unit basis in order to show to better advantage what it costs to manage bees for the production of honey, pollination services, queens, and package bees. The number of man hours per hive are more nearly the same year after year than is the amount of honey produced or income from other sources. The value of labor changes from year to year as does the value of other items which enter into the costs of production, but the colony continues to demand much of the same attention because of its inherent ability to reproduce and to work. Just how many man hours does a commercial beekeeper devote to each hive for the different phases of beekeeping and just what is the cost per unit when **all costs** are reduced to a colony unit level? Taxes, depreciation, and interest on the investment are more constant than yields in the form of income. When all costs are added together and the sum divided by the number of colony units, one has a basic figure that can be used in many different ways.

I will appreciate hearing from any California beekeeper who is interested in making this type of an economic survey and hope that beekeepers in other states will become interested in making similar studies. — J. E. Eckert, University of California, Davis.

SASKATCHEWAN, March 3

Weather: It has been some time since this column has had a report from Saskatchewan. The weather which was most unfavorable for beekeepers last year, has so far been unusually good. Last summer, rain almost every day during July, our honey producing period, was responsible for an almost complete failure in many of our best districts, and resulted in one of the lowest honey crops this province has secured for many years. However, after a bad July, the weather improved, too late to produce a crop of honey, and all fall and winter it has been unusually mild and pleasant. We do not have any reports on how bees are wintering, as yet, but they should be coming through in pretty fair condition.

Honey Market: The smaller production of honey sold quickly at improved prices over a year ago, and those beekeepers who secured an average crop will do very well. Unfortunately, there are altogether too many who had only a small fraction of their usual production and so will not benefit too much by the higher prices.

Canada has had a honey carryover for several years, but it looks as though it will be completely liquidated this year, and by fall there will be nothing on the market to slow up the sale of new honey.

Canada has produced a better-than-average crop for the past two years and all of this honey has been marketed within the country, whereas, previous to the war, it was usually possible to market anywhere from four to ten million pounds overseas. This indicates that the demand on the domestic market has been improved.

This improvement in the domestic demand is one of the brightest features in the beekeeping picture in Canada today, and in the opinion of many, it is largely due to an improvement in the general pack and mostly to a concerted effort to advertise honey on the part of the Canadian Beekeepers' Council, Provincial Beekeepers' Associations, and other beekeeping organizations marketing honey. Honey was never seriously advertised in Canada un-

til about four years ago, and since that time, a rather large carry-over has been liquidated and better-than-average crops marketed each year, which seems to indicate that if beekeepers can continue to pull together and market a good product, well advertised on a national scale, they should be able to continue receiving a price for their product that will adequately compensate them.

Pasture: Most of Saskatchewan honey is produced from sweet clover and alfalfa, and the demand for sweet clover and alfalfa seed has been dropping off in recent years with a consequent reduction in acreage being grown. The situation is being further complicated by the extensive spraying program in most clover-growing areas, where grain crops are sprayed with 2-4D to control broad-leaf weeds, and there seems some indication that the drifting of 2-4D over on the clover fields results in the lack of nectar production and seed set. We do not have too much information on this, but many of our beekeepers believe this to be the case and an effort is being made to secure reliable data on the subject during the coming summer. —R. M. Pugh, Tisdale, Sask., Canada.

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TEXAS, March 4

Weather: The weather was generally mild during the first half of February while the latter part brought frost and relatively cooler and cloudy weather. Rainfall in east and central Texas was near normal with smaller amounts reported from both north and south sections. Locally soil moisture is now more abundant than it has been in three years. West Texas and portions of south Texas are still critically short of rainfall.

Bees and Plants: During the early weeks of the month, bees had prolonged flight daily and considerable pollen and some nectar was gathered from numerous wild flowers. Locally bees were busy on spring beauty, false garlic, red bud, and early fruit bloom, and colonies built up nicely. Prolonged cool, cloudy weather during the latter half of the month greatly curtailed flight of the bees with consequent reduction in the supply of fresh pollen and nectar from the field in spite of the abundant bloom of wild flowers. Colonies which ran short of pollen showed a pause in egg-laying. Honey reserves, too, are running low in some yards and the colonies need feeding. The unfavorable weather interfered with yard operations and queen bee and package bee work is being delayed. Most colonies, however, are in good condition as to stores and build up. In south Texas bees have been working agarita, huisache, and ground flowers for fresh stores of pollen and nectar, however, some sections in that area are too dry for adequate bloom. In the Lower Rio Grande Valley the citrus bloom is now in progress, however, so far the bees have been gathering rather little from this source. Several points in the Valley had rainfall recently which should accelerate the citrus flow. In north Texas bees have been working elms and fruit bloom with brood-rearing well underway and colonies reported in good condition. Acreage of vetch appears to be below that of last year and seedings of sweet clover also indicate some reduction in acreage of this crop.

Market: Movement of honey in the retail market varies rather widely at this time with some markets reporting little consumer demand while other markets report the movement remaining satisfactory. Prices are unchanged, however, few packers are offering chunk comb at this time.

Miscellaneous: According to estimates of the Bureau of Agricultural Economics, U. S. Dept. of Agriculture, 3,721,000 lbs. of honey remained on hand with Texas producers on December 15. This amount is about 34 percent of the total 1952 production. With a rather short crop of top-grade honey in Texas during the past year, the carry-over consists largely of lower grade which the market will absorb rather slowly.

Of our early season bee plants few are as valuable as **agarita (Berberis trifoliata).** This evergreen shrub ranges from central Texas among calcareous hills and adjacent blackland plain southward to San Antonio, thence eastward in similar situations to the Coast and westward to the Rio Grande River. The

bloom, generally reliable year after year, occurs during most of February with the small yellow flowering borne in numerous clusters. These are a rich source of pollen and nectar which the bees store in considerable quantity. For build-up agarita ranks first among the early season flowers in its range.

The San Antonio District Beekeepers' Association held its regular winter meeting on February 20. —A. H. Alex, College Station, Tex.

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MISSISSIPPI, March 3

Weather: My observation has been that when we have an unusually bad season of weather the disaster is never nearly so bad as it looked like it was going to be. The year of 1952 was the driest on record. The rainfall of the year was 31.32 inches as compared with the 63 year average of 51.36 inches. The honey crop from clovers was considerably below normal but not a total loss. By the time fall flowers were to bloom most colonies were almost entirely depleted of food supplies and it looked like there wasn't going to be the usual fall flow which we depend on for winter stores. Somehow the extremely dry weather was just right for bitterweed. It had not yielded much nectar for several years but this time it yielded bountifully and our colonies went into winter in good condition. In the coastal region of the state where the bitterweed does not flourish, the moisture condition was not so bad but that the usual nectar producing flowers enabled colonies to go into winter with very good stores.

Another result of the extremely dry summer was that such plants as white clover which ordinarily live throughout the year were completely killed by the drouth. If there had been a severe winter like we sometimes have these seedlings would not have made it but it seems as if nature has looked upon us favorably with a very mild winter so that such crops now seem to have a good prospect. The blooming period will possibly start a little later than usual, which is perhaps to the advantage of the beekeeper. There has been enough rainfall the past month to make moisture sufficient. There have been frequent cold spells throughout the winter but the temperature has rarely gone much below freezing, the lowest having been 22 degrees above zero.

Colony Conditions: I have examined quite a number of colonies during the past few days and I would say that the condition of colonies is just about ideal. Stores of honey and pollen are plentiful. There has been practically no loss of colonies except for causes of poor beekeeping practices. Pollen sources have been plentiful since early in February. Some brood rearing has been going on since very early in the year but the weather has been such that no extensive brood rearing has taken place, yet there has been enough brood rearing and activity so that most of the old bees are now replaced by young bees. Colonies examined yesterday had from three to six very good frames of brood with most of the colonies having three or four. Some nectar was coming in, principally from fruit bloom, plum, pear, and peach. Brood rearing shows signs of accelerating and should soon be on in a big way.

Queen breeders and package bee producers are beginning to get set for production. Cell-builder colonies are being built up by bringing in brood and bees from out yards so that they will soon be boiling over with bees. These, as well as all breeder colonies, are being stimulated by the feeding of sugar syrup. Some grafting was begun the first of this week in this section of the state. Breeders in the south end of the state are perhaps a little further along. Queen nuclei boxes have been repaired and are ready to be stocked with bees within a short time. In about two weeks these boys will be really putting in some long hours. In their business about 80 percent of the business of the year must be done in about three months and 75 percent of that within a period of about 30 days.

Miscellaneous: We are beginning to think about our state beekeepers' association meeting. Last year we had a two-day meeting at the 4-H Club Camp at Sardis Lake. Several family groups went to this meeting and we liked it so well that we are planning a similar meeting at one of our state parks near the center of the state. We did not know of the facilities of state parks to handle such groups when we scheduled last year's meeting at Sardis. We believe that such meetings are going to draw more and more of our

beekeepers together. It provides a fine two-day outing for the family at little cost and gives plenty of time for discussion of the one thing that beekeepers never get tired of talking about.—Homer Tate, State College, Miss.

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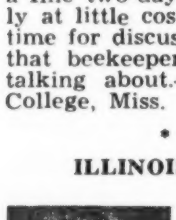
ILLINOIS, February 16



Weather: We are told that so far this winter it has been the mildest in about 23 years. The weather reports from upstate today tell us that that area is being buffeted by snow and high winds. It is hoped our soil has received adequate rainfall to insure the proper moisture condition for our honey plants, that is, the amount needed to start them. Last summer and fall was the driest ever known for most areas of the state. There was talk of having a closed period for hunting until rainfall alleviated the fire hazard. What effect this long continued dry spell will have on our honey plants remains to be seen.

Bees: We are never able to give out any data on how bees are wintering, until spring. Every effort is made in late summer and fall to have colonies in the very best condition as possible for winter. We work for a good cluster of young bees, adequate supply of well ripened honey, and some protection. After placing the wraps on the hives we just forget them until spring. Our loss is small in most years. When the loss is heavy we can still find others near who have had more serious losses. We dislike tearing hives apart in the winter just to see "how they are doing".

Miscellaneous: Honey has sold well right on through the Holiday Season. Most years there is quite a let down in buying from Thanksgiving until the middle of February. This year it was entirely different. In other parts of the country conditions may be exactly opposite. I sometimes wonder just how I would feel to get discouraged and want to quit beekeeping. Of course, I never want to have such a feeling. We hear beekeepers on all sides quitting and wanting to quit. Perhaps they never planned their future with the bees like some of us. Right now my son and I are planning on getting into beekeeping bigger and better than ever before. That brings to my mind another line of thought. What have we to offer the young man of today who wishes to embark in beekeeping? In view of our present day conditions with supplies as high as they are and honey prices pegged at their present level, it does not offer too much to our young men. The pollination program may be offered to the young man. My greatest joy is not in producing a seed crop for a cash return, but in producing a crop of honey. In Illinois we cannot sell the pollination program as some states have done. Here the farmer has very little need for bees in producing a crop of corn or soybeans. If he can give us a sizable acreage of sweet clover for a honey crop the bees are all for free to pollinate any of his seed crops. We want honey.—Carl E. Killion, Paris, Illinois.

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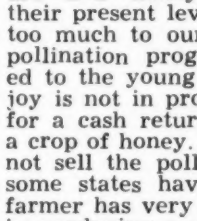
MARYLAND, February 21



Weather: Although the fall honey crop, generally left on for winter stores, did not measure up to expectations, due to the summer dry spell, bees are not hungry yet. These dry periods come regularly now each late summer season. And in coming they dry up the goldenrod, limit the white dutch clover flow, and are hard on fall aster.

Bees in central and eastern Maryland have been in and out all fall and winter, our mildest weather for some years, with very little snow, and considerable rain. This has saturated the woods and fields; creeks and streams have been up since December, and, unless we have a dry spring, clovers should grow well this season.

However, in far Western Maryland, beekeepers experienced one of their worst winters in the Alleghenies in years. Heavy snow and sleet storms came one after the other. One of these ice storms broke down many sugar maples, and an unusual honey flow started on a following mild day after sap started

to flow from broken limbs and trunks. The bees went after this maple sap and stored it in the hives, undoubtedly the earliest "honey flow" on record for this region.

Meetings: In Frederick, on Feb. 14th, we held a regional meeting to decide on equalizing and expanding all the factors involved in showing honey at the State Fairs. Subjects discussed and acted upon were: 1, Enlarging and expanding honey exhibits so more beekeepers would enter; 2, spreading and re-adjusting the prizes offered, $2000; 3, establishing a point system for judging with definite points alloted for certain exhibit qualities; 4, expanding the number of qualified honey exhibit judges through a two-day course in Honey Judging at the University of Maryland Apicultural Laboratory under Dr. Abrams during February; 5, duties, authority and privileges of Honey Superintendents (one local beekeeper) at each of the county fairs; 6, permissable and required features of competitive honey exhibits as well as make-up and purpose of one special educational exhibit at each fair.

At this meeting it was pointed out by several Honey Superintendents present that Maryland beekeepers are becoming very proficient in the art of displaying honey. The Superintendent from the Timonium Fair (our largest) commented on the visit of several large western beekeepers to our displays, and was pleased to report that these westerners assured him that nowhere at any of the big western fairs had they ever seen such large and beautiful displays of honeys as here in Maryland.

The annual meeting of the Maryland State Beekeepers' Association was held on January 10 at the new Apicultural Building at College Park. The principle speakers were Prof. Ed. Anderson of State College, Pennsylvania and G. H. Cale, Editor of the American Bee Journal. Plans were made to again exhibit and sell at the National Capitol Flower and Garden Show at the National Guard Armory in Washington, D. C., March 5 to 11. Thousands of people attend this show to delight in floral fragrances and take home a jar of beautiful Maryland honey. Last year among all this splendor and beauty, the Maryland beekeepers' educational exhibit of apiary equipment, observation hives and honey, attracted as much attention and comment as any part of the entire show. The theme of the honey exhibit was "Something Extra from the Flowers."

Thinking and Planning: This state makes honey; and sells it, too. Beekeepers for the last 50 years have worked as individuals for a crop with two things in mind: Make Honey and Sell It. Now the entire State industry, under the Maryland S. B. Association, with Dr. George Abrams and Harold L. Kelley, as leaders, is extending and re-directing this half-century aim into new fields of activity. Two important new activities discussed and promoted in county beekeeping circles, and through Association meetings and its publications are:

1. Tell the Public More about the Value of Honey as a fine basic food through many more large and small displays at the various county fairs this year. 2. Map the Entire Floral Typography of the State Nectarwise so we can have all the facts on how to get the most from this valuable state resource.

Both of these projects are going forward with dispatch. We have just completed the floral study of the 1952 honey season and the many individual studies are being compiled, a somewhat lengthy and involved but very rewarding job.

Market: Most are pretty well sold out of the 1952 crop. Some, as usual, got rid of it fast, for a price around 10 cents, saying they take what they can get quick, and don't want to bother dribbling it out at retail and to local stores throughout the winter. Others have sold at the higher price, to a steady demand over the winter at prices, in one pound jars, of from 39 to 50 cents. Several larger beekeepers in the state will buy all they can get at 9 cents.

This is a clear example right within the industry of beekeepers depressing the price. How can a backlotter with 50 hives, making two or more or less tons of honey, sell the most of it for 9 cents and make a profit on his work? Either we are making far more honey than the market can readily absorb and give us a profit, or, there is something the matter with our product as we make it.

A number of us who are interested in honey as a basic food which we feel should be sold as a natural, untampered-with product, were discussing certain present practices of

a part of the industry and were trying to decide whether or not they have any effect on people's taste for honey and on repeat buying. For example, who knows what harmful effects on flavor may be caused by sulfa pills, oil smoke, overheating or any heating, carbolic acid, sugar feeding, nitrous oxide, transmission through pipes, long storage in metal containers, and similar unnatural factors which perhaps should not enter into marketing a wonderful basic food. The housewife buys on taste; if she is young and doesn't like the taste of her first purchase, it will be a long time until she buys again, if ever.

New Beekeepers: Forty beekeepers completed the First Annual Beekeepers' short course held at the University last year. Some from this group will be looking for outapiary stands. The course consisted of 10 Monday night lectures and 5 Saturday afternoon laboratories. Students came mainly from the metropolitan Washington area and were composed mostly of sideliners. The profession with the most representatives was Graduate Engineers, four; housewives, three; and the rest a general sprinkling of doctors, lawyers, and other professional people.—S. W. Edwards, Myersville, Maryland.

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WYOMING, March 5

Weather: Perhaps Wyoming weather is irrelevant to the New York or Florida beekeeper, however, it has been most unusual this winter. We have had very few days of zero weather, not much snow, and many weeks of sunshine with temperatures in the 40's and 50's. However, it is hoped that this is not a harbinger of a dry summer with a shortage of irrigation water because of light snow covering in the mountains. March is usually the month of heaviest snow and at present there is an average of about eight inches over the State.

Miscellaneous: Bees went into the winter in better-than-average condition owing to a season blessed with a good flow and so are in good shape thus far. Much wintering of bees is now done without any packing which certainly saves a lot of work, but I am not prepared to say whether this is an over-all safe plan. We have not had a severe winter with long periods of sub-zero temperatures for 10 years or more. A return of typical Wyoming winters might bring heavy losses to unpacked bees. But in these days of scarce and high cost of help, short cuts are necessary.

Honey is enjoying a better demand than formerly when there was no sugar rationing to help out. The Ontario beekeepers have struck what should be a responsive chord in starting a move to improve conditions under which honey is extracted and packed. I have visited many honey houses in my day, some ideal and to be desired as a pattern, but many unsanitary and revolting, and a disgrace to the industry. The product of the bees is one of nature's best gifts to man if carefully handled and attractively packed.

At three score and ten I find myself out of the business of producing the distilled nectar of the bloom of spring and summer. And here's hoping that we may yet see the day when pure honey will come into its own, perhaps by a process of dehydrating which will not dissipate the delicate oils that give the distinctive flavor and meet the fickle, though popular objection of stickiness complained of by many housewives.—Earl C. Reed, Randchester, Wyoming.

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ONTARIO, March 9

Many businesses today maintain public relations departments staffed with men who have the "How to win friends and influence people" touch. And no doubt it pays off in terms of cash-register receipts, and more cordial relations between buyer and seller. So far as I am aware not a great deal has been attempted in that field by the honey industry. However, the Ontario Honey Producers' Cooperative, packers of Beekist and Clover Brand honey, has done something about it. Recently a new price list sent to buyers and dealers had attached the following memorandum:

"Honey is one of the smaller volume items of food you merchandise. Yes, we can get along without honey, but we cannot get along without the honey bee.

"Do you know that over fifty of the most important fruits and vegetables you sell, either canned or raw, are now practically dependent

on the honey bee for production. (Pollination)? The same applies to nearly all clovers and legumes, which provide the food to produce the meat, milk, butter, cheese, etc., and also enrich the soil for the production of cereals. The natural wild pollinating insects are rapidly disappearing, and each year we will depend on the honey bee more and more.

"Any time you feature the sale of honey by advertising, special store displays, etc. you help.

"Remember the honey bee is the greatest single contributing factor in maintaining our high standard of living. No bees—no beefsteak".

The following release with reference to net weights of comb honey sections is of interest. It is over the signature of F. R. Armstrong, Dominion honey specialist: "Seeking clarification of the required net weight declaration, I have been informed by Mr. W. A. Crandall, Chief Inspection Services, Food and Drugs Division, that net weight means the weight of the section less the weight of the wooden frame, and that the net weight declared can be an average net weight (although not declared as average) provided it is a fair average, and that as many sections will be above as below the net weight declared. In this connection he pointed out that action is never taken on a single sample".

Some figures from the report of the International Trade Branch of the Dominion Bureau of Statistics show that in 1952 Canada exported 454,959 pounds of honey, of which 363,999 pounds went to the U. S. A., the remainder, approximately 90,000 pounds, went to Europe. This latter figure is infinitesimal compared to the millions of pounds Canada shipped to Britain and Europe prior to the Hitler war, and which amounted to nearly 12,000,000 pounds in 1939. In 1952 Canada imported bees and queens to the value of $301,203.00, practically all from the U. S. A.

Sales of honey in Ontario since January 1st have moved up sharply, with firmer prices. It now appears that 1952 stocks will be disposed of by the time 1953 honey is available.

Nothing to report on the general condition of bees. One beekeeper who couldn't resist looking into his colonies tells me there are plenty of bees, but not too abundant stores.

Damage to clover meadows varies with locality. On flat land some heaving has occurred. This condition is not so noticeable in areas where land is rolling. With no snow coverage, some damage is liable to occur as the bright sun thaws the surface in the day time, and the hard night frosts harden the soil like concrete. — Allan T. Brown, Peterborough, Ont.

A typical fireweed location in the state of Washington.—Picture sent by Walter Evans, Longview, Wash.

Program of American Beekeepers' Federation for 1953

1. **Research:**
   a. Pollination—Need for this research to get facts we now think we know, but do not.
   b. Extension—Secure a full time Extension Specialist in Pollination.
   c. Bee Breeding—Still in its infancy.
   d. Nosema—We have learned there is to be some practical research this spring in actual commercial operations.
   e. E.F.B.—E.F.B. is still very costly to the Western operator. It is now moving to the middle west. Research to control E.F.B. is urgently needed.
   f. Honey Utilization—This research to find new uses for honey, and better bottling methods.
   g. Honey House Sanitation—The need is great, for a code pertaining to our industry. We do not believe that the Dairy Code can apply to honey handling.
2. **Marketing:**
   a. Price Support and Promotion The convention at San Jose, California, went on record favoring the continuance of the Loan and Purchase Agreement Program and also, for again having the P.M.A. Plentiful Foods Promotional Program in 1953.
   b. To publicise methods of Marketing.
   c. To study plans for a continuing Marketing Program.
3. **Organization:**
   a. Coordination of Regional Meetings—Cooperate with State Associations in districts to have meetings in chronological order to allow speakers to make consecutive meetings on one trip, thereby saving travel expense.
   b. Representation by States and Districts on an equitable basis, on the Federation Board of Directors.
   c. Increase the Membership with special attention given to securing members in the Eastern States.
   d. Interest the Hobbyist and Backlotter to become members
   e. Increase the Membership of the "500" Club.
   f. Council, help organizations of Industry Council into top Industry Organization.
   g. News Letter—Attempt to make the News Letter Self Supporting.
   h. R.M.A.—To secure representation on Seed Advisory Committee and on the Food and Nutrition Committee of the R.M.A.
   i. Washington Contact—To further amiable relations with Government officials—To Acquaint Federal Agencies with the problems and needs of the Federation, for closer contact with Federal Research and Marketing Agencies.

To consumate a Federation Program we require Funds. To raise Funds, we need more Members. To increase Federation Membership, we need a PROGRAM.

The above program was planned by the Board of Directors and the Executive Committee, at San Jose, California, for the year 1953.

The Federation Constitution was changed at the San Jose convention, to allow Federation members within State Organizations to organize for representation on the Federation Board, where the majority within the State Organization refuse to affiliate with the National Organization. The way is now open for every State to be represented on the Federation Board of Directors.

The Officers of the Federation hope that with the achievement of a program such as here given, all Industry investment will be protected and increased in value. Protect your investment, JOIN THE FEDERATION!— The Executive Committee of the Federation. H. A. Schaefer, President.

At the Executive phone conference meeting, March 9th, the following action was taken:

1. Terminated Glen Jones temporary service as Sec-Treas. as of March 31, 1953.
2. No action on hiring another Sec.-Treas. Position is open for all applications.
3. Directed the President to mail copies of all applications to all Executive Committee Members.
4. Directed the President to secure bonded commercial bookkeeping service for Federation books.
5. Requested that all remittances for dues be mailed to the Office of the President, American Beekeeping Federation, Osseo, Wisconsin.
6. Voted BALTIMORE, MD., as the CITY for the 1954 CONVENTION.—Henry A. Schaefer, President,—Osseo, Wisconsin.

Condensation of Some Resolutions Passed at Annual Federation Meeting in San Jose, California, January 26-31, 1953.

WHEREAS, in several areas of the United States there is continued serious loss of honey bees to European Foulbrood, Nosema, and other diseases, and a shortage of information about these diseases upon which can be developed either cures or preventive measures, BE IT RESOLVED, that the American Beekeeping Federation use every means at its disposal to secure an expansion of work on bee diseases in the Division of Bee Culture and Biological Control of the United States Department of Agriculture and in the Experiment Stations of the Land Grant Colleges, and that the American Beekeeping Federation give serious thought and consideration to assisting in the financing of such research when it will lead to more rapid progress.

WHEREAS, the promotional program, conducted by the Food Distribution Branch of P.M.A. through five regional offices was highly successful in promoting the sale of honey and brought to the industry several million dollar's worth of free publicity and consumer education, and WHEREAS honey surpluses still plague our marketing efforts and we do not have an established and orderly honey market, BE IT RESOLVED that the American Beekeeping Federation urgently request a plentiful foods promotional program for honey during 1953 on as large a scale as can be justified.

WHEREAS, the Bureau of Agricultural Economics, U. S. Department of Agriculture, in 1952 administratively decided it necessary to drop three of four statistical reports on the production of honey, beeswax, package bees and queens, leaving only one report—its annual report on the production of honey and beeswax, without consulting with the bee and honey industry, and WHEREAS, such reports are the only source of a much too limited amount of statistical information about the bee and honey industry which have been of much benefit, BE IT RESOLVED: that the Bureau of Agricultural Economics be urgently requested to reinstate its annual report on the production of package bees and queens, and that this be distributed in addition to the annual report on the production of honey and beeswax.

WHEREAS, the present price support program for extracted honey now administered by the U. S. Department of Agriculture has been in operation since April 1, 1952, and this program based on loans and purchase agreements available to honey producers everywhere at price levels above the minimum established by the Agricultural Act of 1949, has been extremely beneficial and universally acceptable to honey producers, for whom price support was intended, and WHEREAS, this program in its 1952 operations resulted in the Government contracting to acquire through loans and purchase agreements a substantially less amount of honey, thus enabling more honey to move through normal channels of trade, and WHEREAS, the honey producers of the United States enabled by this very beneficial program have only recently been able to attain a reasonable semblance of prosperity; THEREFORE, BE IT RESOLVED that the American Beekeeping Federation urgently requests continuation during 1953 of the same type of price support program at the same percentage of parity and price differentials for extracted honey in bulk containers.

WHEREAS, the export subsidy program for honey has been a vitally necessary supplemental program to price support programs of the Government enabling surpluses of honey to be exported without having to be taken over by the Government, and WHEREAS, the subsidy export program has enabled the free trade of the United States to reestablish, in competition with prices of other exporting countries, the normal export markets for extracted honey lost during World War II which we had previously participated in as a Nation, and WHEREAS, during 1952 exporters of this country did ship abroad a larger quantity of honey than normally under the present subsidy payment level, this was due to a more open market because of poor honey crops in competing countries of export, and to the good quality of United States honeys, and WHEREAS, under normal conditions these exports which have been so beneficial to the Government's operation to stabilize the price of honey for producers would be greatly reduced; BE IT RESOLVED that the American Beekeeping Federation urgently request the continuation of the subsidy export program and at the same subsidy payment during 1953.

WHEREAS, the purpose of the subsidy diversion program to create new uses for and products made with honey is fundamental to progress of the honey industry because it holds the possibility of encouraging new and extensive use of honey sufficient to solve our honey surplus problems, and WHEREAS, many individuals and companies are involved in the necessary research and development relative to participation in this program for the ultimate good of the entire bee and honey industry, in spite of the recognized fact that material use of this subsidy program so far has not been accomplished: THEREFORE, BE IT RESOLVED that the American Beekeeping Federation urgently request continuation of the diversion subsidy program for honey during 1953 and at the same subsidy payment, recognizing that if use of this program soon is not made by individuals and companies of the bee and honey industry, it should be subsequently discontinued.

WHEREAS, bees are essential to agriculture in the pollination of many orchard, vegetable, legume and other farm crops; and WHEREAS, the movement of live bees in interstate trade has been seriously hampered by excessive express rates, to the extent that all phases of the beekeeping industry have suffered greatly; and WHEREAS, as a consequence agricultural crops dependent upon bees for pollination have likewise suffered serious losses; BE IT THEREFORE RESOLVED that to assure the continued availability of bees to agriculture it is necessary that bees be declared by the U. S. Department of Agriculture to be an essential Agricultural Commodity for the entire United States, and further that the common carriers, including the Railway Express Agency, Inc., be so advised in order that there may ensure a normal movement of bees into areas in which they are needed for pollination.

BE IT RESOLVED, that this Convention recognizes the contributions of the following who passed on in 1952: Lewis Parks, Leroy Bell, J. H. Davis, Clifford Muth, Steve Parks, Paul Rudel, Peter Stiever, Dan Hillman, Charles D. Blaker, and E. D. Townsend, to the advancement of the Beekeeping Industry and that letters of appreciation for these contributions be sent to the families of the deceased.

History of a Lost Swarm

By C. H. Pease, Canaan, Conn.

[In July 1951, page 435, Mr. Pease told of the capture of this swarm. The following brings the value of the swarm up to date, and the story is worth re-reading. —Ed.]

I am convinced that few beekeepers realize what they lose when a swarm leaves them. The following record of what one beekeeper lost when a swarm left him is an accurate report of what I gained by capturing it.

On July 14, 1950, a telephone call came to me from a young man who was mowing the Catholic church lawn, about a mile from my home informing me that a swarm of bees was hanging on a bush on the lawn and that he was afraid to mow the grass near them. He asked me if I would come and take them away. I went after them with my swarm-catching hive in my car.

They were clustered on a bush so low that they almost touched the ground and I had only to place the hive near them with the entrance facing the cluster and they immediately began to chase each other into it. I doubt if a smoker working back of them would have driven them in any faster.

As old-time beekeepers considered that a swarm of bees in July was "not worth a fly" I didn't expect results from that mid-July swarm that a prime swarm in May or June would have given me, but I considered them well worth saving and hived them in a ten-frame brood chamber on drawn combs.

Evidently those bees appreciated their new home and went to work in a business like way with the result that 11 days later (July 25) I gave them a shallow super. On October 5 the super came off and gave me a little over 20 pounds of honey, which, at 30 cents a pound (the price at which we sold our honey) amounted to a little over $6.00.

The following spring (May 1, 1951) this colony was established and building up for the honey flow when a three-pound package of bees from the South came to our town at a cost of $5.50 and an express charge of $2.35—total $7.85—and any beekeeper must admit that the established and working colony in the hive was worth more than the three pounds of bees in a cage. Thus, the $6.00 worth of honey, produced the year before, added to the value of the bees, totaled $13.85.

In October we took off five shallow supers, four of which were fairly well filled, and netted 97 pounds of honey, which, at 30 cents a pound added $29.10 to the previous total of $13.85, or $42.95, total income from this colony in the year and a half since it swarmed.

Last spring (1952) they built up well and my record book told me that in June the old queen was superseded and her young successor was doing business in the brood chamber with four shallow supers over her. On June 30 the fifth super was given. The unprecedented hot and dry weather in July (the hottest and dryest on record for our state) slowed down the honey flow, while it lasted, and the bees ate more than they gathered; however, the goldenrod and aster flow during the fine weather in September made good the loss and we extracted from the five supers 138 pounds, which, at 30 cents a pound, added $41.40 to the previous total of $42.95, or a grand total of $84.35 from the lost swarm in the two and a half years. The colony is now in fine condition, with its young queen, to go through the winter in my cellar where not one normal colony has been lost from wintering in 31 years.

Yes, I think very few beekeepers realize what they lose when a swarm leaves them, even as late as mid-July. I "swore off" losing swarms, or climbing trees to get them, several years ago, and can't remember when I lost my last one. The fact that my swarms stay with me and store their entire honey crops in my hives, instead of in some tree or building, out of my reach, may account in a measure for my bigger crops of honey than my neighbor beekeepers get. Last season, (1952) was an exceptionally good season here, and although Connecticut is considered a poor honey state, compared with Western states, my crop from ten colonies was 1263 pounds—a little over 126 pounds per colony average. In all of my 33 years of beekeeping I have never known the Government crop reports to give our state a per colony average of more than 37 pounds.

[According to the U. S. Department of Agriculture honey report the 1952 per colony average production of honey for Connecticut was 26 pounds.—Ed.]

Asked & Answered

Comb Space Required by Queen

Question: How many combs would a queen use if she had more than she would naturally use?—C. W. Jones, N. Y.

Answer: Regarding the number of brood chambers or combs a queen will use for egg laying depends on the nature of the season, the quality of the queen, and the quality and availability of comb space. Years ago most beekeepers confined each queen to a single-story brood chamber. At present, especially in the production of extracted honey, queens are given access to the combs in double brood chambers. The upper chamber is sometimes called the food chamber. During the spring it becomes a brood chamber, especially when a prolific queen needs more space than the bottom brood chamber affords for egg laying. In reality, a single-story 10-frame Standard brood chamber with good combs will hold all the eggs that any queen is capable of laying. However, there needs to be space for pollen and some nectar adjacent to the brood also an ample amount of honey for stores, especially during winter and early spring, and that is why the double brood chamber is advocated and used quite generally. In such a hive, the queen, during the active season when brood rearing is heavy, rotates between the two chambers. In the spring she will usually be found in the upper chamber which is warmer than the lower one. When warm weather comes she will go down into the bottom chamber. The middle combs of the two chambers will be used for brood rearing while the outside combs will contain honey and pollen. At the height of the season it is not uncommon to find brood in from 14 to 16 combs. However, if all of this brood were segregated into full combs, this amount of brood would not completely fill more than eight or nine combs.

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Feeding Syrup, Spring Management, etc.

Question: Last year we got our first hives of bees, and were told the hive would be a better hive if we were to leave one super of honey on the hive for the winter as food for the bees. This we have done. We were also told that about twice a month if possible, on warm sunny days during the winter, we were to feed the bees a syrup of three parts sugar to one part boiled water. This we have done, but the bees do not seem to take in any of the syrup. Do we continue to leave the syrup in front of the hives, or take it away and start feeding in early spring?

In the spring of the year when we add more supers do we take away the one which was left in the hive this past fall?

Is it better practice to add supers successively as the summer progresses, or should we set up all the supers in the spring, anticipating approximately the same yield as we had last year?—B. N. Greene, Wis.

Answer: It is inadvisable to try feeding sugar syrup in entrance feeders during the winter. The bees really should be fed during the fall if syrup is needed to supplement the lack of honey.

If it is ever necessary to feed early in the spring use an inside feeder, or use a friction-top pail with the lid having about a dozen small holes made with a 3-penny nail. The pail filled with warm syrup is turned upside down over the opening in the center of the inner cover or over the frames. An empty box or super is placed on, under the outer cover to protect the pail of syrup, while bees are taking it. This method puts the sugar syrup above the cluster where the bees can get to it easily, even though the weather is cool.

The food chamber, is left on the hive continuously. When more supers are added they are placed above the double brood chamber.

We suggest that you add at least one super to each colony at the begnning of the early honey flow from dandelion and fruit bloom, if your colonies are populous in bees. More supers may be added on top as needed during the main honey flow which, in your locality, would start in early June and continue during the summer months.

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Honey Granulates in Jars

Question: I am having trouble with my extracted honey granulating after it is packed. Is there any way of overcoming this other than reheating it? It is quite a lot of trouble especially when poured over comb honey. Is there any pure chemical that would overcome the granulation when mixed with the honey?—L. C. Humphrey, Tenn.

Answer: Heating honey to 160°F., keeping it at that temperature for 20 or 30 minutes, then permitting the honey to cool to a temperature of about 130° before it is poured into containers holding comb honey, should retard granulation. We know of no chemical that can be used legally with the honey to prevent granulation. Honey that contains a high percentage of levulose is not likely to granulate quickly.

American Honey Institute News Notes

Harriett M. Grace, Director
Commercial State Bank Building, Madison 3, Wisconsin

Twenty Five Years of Service!

Dig up that red pencil, sharpen it to a narrow point, and draw a big, broad circle around the date March 28, 1953, on your kitchen calendar. That will be the most important date on the beekeeper's 1953 calendar.

For that is the date that marks the 25th anniversary of the founding of the American Honey Institute.

No beekeeper who can remember back to pre-Institute days will doubt the significance of the Institute's 25 years of service to the American beekeeping industry. Even those of us who are "babies" of the industry—perhaps we have been keeping bees only since the end of the war——cannot help seeing the immense gains the industry has made in the field of product promotion.

Why? That answer is one everybody knows.

Because of the efforts of the American Honey Institute for 25 consecutive years the honey industry has grown from a toddling infant to a strong and leading contender for the public's food dollar.

In the past we have been reticent to pat ourselves on the back. We were content to wait quietly and receive those unsolicited words of praise that so often came our way. But now, with the benign air of all who can celebrate a 25th anniversary, we feel like reminiscing a bit about our past deeds.

Yes, it was 25 years ago in March, 1928, that the American Honey Institute originated.

The idea sounded like a good one. Here was a chance to promote honey by working with another food industry. Leaders in the honey industry met in Chicago. It was at this Chicago meeting that the American Honey Institute was born.

What was the purpose of creating such an Institute? Why go to such trouble and expense? Would such an organization be well received by the beekeepers it was to serve? Shall we gamble and start such an Institute?

Such were the questions that ran through the minds of those foresighted men who laid the foundations of the American Honey Institute. But being men of fortitude and courage, they decided to give the "Institute Idea" a try.

And only one try was needed to convince American beemen that the "Institute Idea" was the exact remedy for the ailing honey industry. After the Institute was incorporated as a non-profit organization, after the wheels of its machinery were oiled with a little experience and a vast amount of daring, after it was reorganized in 1938, the American Honey Institute burst out of the cocoon stage of development into the full-blown adulthood of a successful honey promoter.

The Board of Directors to this day stress the fact that the Institute, even 25 years after its founding, is in a constant state of flux, of change, of development. They point out that the American Honey Institute was founded on the "Institute Idea", the Idea of making America's potential honey market an actual one, and that in order to keep this idea alive and vital the American Honey Institute must be ready and willing to accept new changes in the complexion of American life.

For this liberal policy the member-beekeeper can be thankful. It is because the leaders of the Institute have kept an open-minded approach to all honey promotion that the American Honey Institute now represents honey so successfully in the promotion and advertising world.

Unlike many executives who jealously refuse to tell how or why they have made a go of it, Mrs. Grace openly declares the secret of success. "The amazing success of the American Honey Institute," she says with a wise shake of her head, "is due to the utter devotion to the four E's—**Economy, Efficiency, Effort,** and **Excellence.**"

From the start the Board of Directors of the Institute recognized the limitations of their organization. They knew that funds would be short compared with other food industries. Yet they were convinced that honey must be promoted, advertised, in order to get its cut of the American food dollar.

There was only one solution to such a problem—honey's promotional funds would have to be used soundly, wisely, with the greatest economy.

Throughout the past 25 years the Institute has followed this axiom of **Economy** closely. Every activity is minutely examined for ragged edges that eat up funds. It is pared down to its essential core. As one past government official so aptly phrased it, "We have peeled off the fat and left only the muscle."

Twenty-five years of this type of operation have made beekeepers confident that the money they invest in the Institute will be wisely spent.

It follows, then, that to operate economically you must operate efficiently. This second of the four E's—**Efficiency**—is indeed one of the master keys that unlocks the door to Institute successes.

Each employee of the Institute must know what is expected of him, must know his job, must know how to perform his job well. Each recipe leaflet that is printed contains no waste space, no waste wordage that is not essential to the value of the leaflet. Time is considered a commodity to be used to the Institute's best advantage. This is the way Efficiency is spelled at the American Honey Institute.

Without **Effort** all would be lost. But the Institute realizes that it is not only the effort made by those closely connected with the Institute that is important. Effort must also be made by every beekeeper, every man who wants to call himself a part of the honey industry. That is why the American Honey Institute concentrates on pulling the beekeepers together into one union; that is why the membership drives staged by the Institute are not merely to add names to the Institute roll call but—more important—to urge beekeepers to make an effort to promote honey on a large scale. Individual effort multiplied a thousandfold adds up to a total no amount of high finance can reach.

You might as well throw all the Economy, Efficiency, and Effort you can muster out the window, however, unless you gauge them by a standard of service. The standard of the American Honey Institute allows no compromise—it is **Excellence.** Every news release is written and re-written, every honey recipe tested and re-tested, every letter of correspondence viewed and reviewed, until it is concise and letter perfect. It is as if the Institute wanted to stamp a gold-engraved Seal of Excellence upon every piece of work that went out of the Institute office.

That's it, then. The secret formula for our 25 years of service to the honey industry is wrapped up in the four little words, **Economy, Efficiency, Effort,** and **Excellence.** These are the keywords that have brought us to our 25th anniversary. They are the words that will usher us to our golden anniversary 25 years from now.

Increase in Express Rates on Bees Would Hurt Industry

By Roy S. Weaver, Navasota, Texas
Sec.-Treas. American Bee Breeders' Association

According to recent press notices, the Railway Express Agency is asking the Interstate Commerce Commission for a 25 percent across the board increase in Express rates. We have just written the Interstate Commerce Commission asking if this is true, and protesting any rate increase on Package Bees.

The beekeeping industry has been hurt badly by the reclassification about two years ago of Package Bees from First Class to one and one-half First Class. Any new rate increase would probably preclude the shipping of any Package Bees by Express. This would be a very serious blow to the industry. Railway Express offers the only method of transporting Package Bees which has been found to be entirely satisfactory. However, present rates are higher than Northern beekeepers can afford to pay, and we can foresee no honey and pollination service price increases which will enable beekeepers to overcome these high rates.

This matter, we think, is of vital importance to the entire beekeeping industry. We are protesting any new rate increase, and are asking that Package Bees be returned to the old classification of First Class. Will you please check into this matter and request all your subscribers to register a protest with the Interstate Commerce Commission? It is of special importance to buyers and shippers of bees.

Just News

The **Connecticut Beekeepers' Association** will hold its annual meeting and the election of new officers on Saturday, April 18, 1953. The meeting will be held in the Hartford Y.M.C.A., corner of Pearl and Jewel Streets, Hartford, Conn. The location is northeast of the Capitol Building. An interesting speaker will give a talk and an invitation is extended to all who are interested. —Philemon J. Hewitt, Jr., Chairman of Publicity.

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Middlesex County Beekeepers' Association (Mass.) will hold its last indoor meeting at their winter quarters at the State Experimental Station, Waltham, on April 25, 1953. This meeting will show new and prospective beekeepers the method of introducing or installing a package of bees into a new hive, which hive will remain the property of the Association during the summer months when at each subsequent meeting the "hive" is to be opened and inspected to show the progress that such a new installation can make in one season. The Association year ends with this meeting but since the officers were elected last year for a two-year term there will be no election this year and the same officers will stay in. The tremendous success of the Bee display at the Flower Show in March has given many people the urge to have some bees of their own and those interested should attend this meeting to see the "package" installed and get the confidence of handling bees. It is the custom of the Association to give the hive to some lucky member at the September meeting which is the last outdoor meeting for the season. — John H. Furber, Sec.-Treas.

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The **Western Missouri Beekeepers Association** will hold its regular monthly meeting on Sunday, April 12, at 7011 Prospect, Kansas City, Mo. Time 2:30. Visitors are welcome. — Mrs. Robt. W. Cornforth, Sec.

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The **North Arkansas Beekeepers'** will have an all-day meeting on April 17, 9:30 a.m. till 3:00 p.m. at Harrison, Ark. Speakers from the University of Arkansas, Loyd Evans from K.W.T.O, Springfield, Mo. a farm editor, and others are invited to be on the program.—Gladys McKay, Sec.

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The **Westchester County Beekeepers' Association** will hold its next meeting at 2:30 p.m., Sunday, April 19, at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. Getting bees ready for the coming year will be the topic of the day. Beginners who want this information should be on hand as this is one of the purposes of our organization to help them with their problems. A guest speaker is expected. —Carlton E. Slater, Publicity.

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The **St. Clair Beekeepers' Association** will hold its next regular meeting at the County Court House at Belleville, Illinois, in the Probate Court Room on April 6, 1953 at 8:00 P.M. Mr. Carl E. Killion, Chief Apiary Inspector, will be the main speaker and will show colored slides relative to comb honey production and other interesting subjects.—L. M. Leiper, Sec.

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The **Annual Short Course for Beekeepers** will be held at Ames, Iowa, on May 12 and 13. Mr. Carl Killion of Illinois will be the guest speaker. —F.B. Paddock, Extension Apiarist.

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Queens will be the big topic of comb-honey champions Carl Killion and son Gene at the next meeting of the **Cook-DuPage Association.** The meeting will be at 7:00 P. M. Saturday, April 18, 1953 in the Gold Dome Building, Garfield Park Recreation Center, 3600 W. Washington Blvd., Chicago, Ill.

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On April 19, **Macon County Beekeepers' Association** will hold its first outdoor meeting at the home of Earl W. Chaney, 1625 E. Division, Decatur, Illinois. Open house will be held for all beekeeyers. Am planning to have some package bees to install that day. I will also give free one Killion Comb Honey Super as a door prize.—Earl W. Chaney.

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"The city of Vienna has the largest number of bee colonies in the world. Neither New York, London, Los Angeles, Rio de Janeiro, nor any other city can compare with Vienna in this respect". —Taken from February 1953 **Canadian Bee Journal.**

Ralph Carter Lawson, Birmingham, Iowa, a well-known beekeeper passed away on February 5. He will be greatly missed by all who knew him.—J. W. Stine, Fairfield, Iowa.

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John O. Wingate of Muncie, Ind., life-long beekeeper and dealer in bee supplies, died on February 3 at the age of 80.

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You all know what damage the floods have done in our country. I am the cashier of the Farmersbank at Renkum and the sec.-treas. of the Beekeepers' Association at Renkum. You can help the farmers and the beekeepers. Send your gift to the Farmersbank, Dorpsstraat 145 at Renkum, with the addition "Disaster-fund". Thank you in anticipation.—J. C. van Scherrenburg, Renkum, (Holland).

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Utah has 600 beekeepers who are commercially active, plus many backyard and hobbyist beekeepers, reported Dr. J. I. Curtis, state bee inspector, at the recent Provo annual meeting of the **Utah State Beekeepers' Association.**

Research at the Utah State Agricultural College, Legume Seed Research Laboratory, and educational programs in this field which are of interest and benefit to the beekeepers, were reported by Dr. G. F. Knowlton. His duties touch both research and educational aspects of the program with which he has been associated since 1939 at Utah State Agricultural College.

4-H Club bee projects and pollination services for agriculture were discussed by U. S. D. A. beekeeping specialist M. D. Levin of the Utah Experiment Station, USDA research staff. Problems of bees becoming poisoned through applications of agricultural chemicals, as conducted by the cooperating Federal and Utah experiment station entomologists, was the subject of an illustrated lecture given by W. P. Nye of the Legume Seed Research Laboratory. This was followed by motion pictures dealing with honey bees.

Utah has from 45,000 to 50,000 colonies of bees most years. These bring a gross income to the beekeepers of nearly one-half million dollars a year when prices of honey and beeswax are strong, but the income has been less during recent years. Bees produce many times this amount of wealth by setting alfalfa seed and from fruit crop pollination and through other agricultural help to berry, vegetable and related crops, in the opinion of Dr. Knowlton.

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J. E. Johnson, of Verona, Missouri, our old friend who does so much to improve his locality by sowing Vitex, Simpson honey plants, and other good yielders, writes that the 1952 season was the driest he has known in his 65 years of beekeeping. His thousand Vitex trees stood the drouth very well but the Simpson honey plant did not yield much on account of the continued dry weather, — the driest that he could remember. Mr. Johnson, though 86 years old, is planning for the future, planting so that others may reap. He is in demand at beekeepers' meetings locally where he preaches the gospel of improving locations by setting out Vitex and other honey-bearing plants on waste ground where little else will grow. Too bad there are not more J. E. Johnsons in the land!—H. H. Root.

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"Million Miler" Keeps a Million Bees — Paul R. Morton, Captain, Braniff International Airways, has been flying since 16 years of age. He learned to fly in a farmers' airplane, taking off from a farmers' cornfield. Captain Morton is now a "Million Miler" flying regularly from Dallas, Texas to Lima, Peru. He bought the "ABC & XYZ of Bee Culture" and becoming very much interested in bees because such a hobby would not require attention every day, he is now a full-fledged beekeeper at his home, 5102 W. Mockingbird Lane, Dallas 9, Texas. Since he is a flyer himself, he likes to have a million flyers flying for him.

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The photos of the pictures on pages 141 and 142 of our February issue illustrating the article on "Shipping Bees and Queens" by M. S. Fortune, were furnished by Authenticated News, 170 Fifth Avenue, New York 10, N. Y.

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Tazewell Beekeepers will gather again on Sunday April 12, at the Farm Bureau Building in Pekin, Ills. The usual lunch will be served at 1 o'clock. Membership in the organization has increased to a good number.—Jos. Jachman, Secretary.

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

ANY GRADE—Any amount. Alexander Co., 819 Reynolds, Toledo, Ohio.

IOWA Honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 1.

800 Cans White Clover Honey. John Tideswell, 2711 North 63rd St., Omaha, Nebraska.

FOR SALE—Sweet clover honey, 17c a pound; Heartsease honey, 11c a pound. Benj. Nielsen, Aurora, Nebr.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on COD terms except where the buyer has thoroughly established his credit with the seller.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & Company, 2613 South Yates Ave., Los Angeles 22, California.

HONEY WANTED, any amount. If you want more for your honey, sell it to Cloverdale Honey Co., Fredonia, N. Y.

WRITE FOR shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 percent saving. Walter T. Kelley Co., Clarkson, Kentucky.

WANTED—Light amber clover, amber, goldenrod, buckwheat. Advise what you have for immediate delivery. Roscoe F. Wixson, Dundee, N. Y.

CASH PAID for white and amber extracted honey. Send samples and state quantity available. Prairie View Honey Company, 12303 - 12th St., Detroit 6, Mich.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

WANTED—Carloads or less of honey and wax. Any grade. Send sample and best cash price. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

CASH FOR YOUR HONEY—Light extracted or comb. Regular trade send sample. 60-pound cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

WANTED honey in all grades. Highest cash prices paid. Submit samples. Schultz Honey Farms, Ripon, Wisconsin.

ALL GRADES HONEY AND WAX WANTED—Mail samples, advise quantity and cash prices delivered to us. HONEY SALES COMPANY, 1808 NO. WASHINGTON AVE., MINNEAPOLIS 11, MINN.

WANTED — Honey all grades. Quote prices and send sample. Write Stoller Honey Farms, Latty, Ohio.

WANTED—All grades extracted honey. Send sample, price, and quantity. Deer Creek Honey Farms, London, Ohio.

FOR SALE

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY

BEE SUPPLIES—Tin packages; 10 sizes glass jars; paper shipping supplies; window cartons and other items. Roscoe F. Wixson, Dundee, N. Y.

The only comb foundation plant in the east. We sell foundation, work your wax, render combs and cappings. Robinson's Wax Works, R. D. 3, Auburn, N. Y.

BEE SUPPLIES. Catalog free. Hodgson Bee Supplies, Ltd., 575 13th Ave., New Westminster, B. C., Canada.

FOR SALE — New heart cypress 10-frame bottom boards. K. D., 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. One nailed up sample, postpaid, $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

SIMPLEX TRAP clips queens without handling, $1.00 postpaid. Instant Frame Spacers — eight-nine, specify size, $1.50 postpaid. Free circulars. George Leys, 36 Jackson St., New Rochelle, N. Y.

FOR SALE — Approximately 1500 10-frame hive bodies and frames; 45-frame extractor, Brand melter, etc. No reasonable offer refused. Vanderbeek Fur Farm, Crookston, Minn.

FOR SALE — 30 Root 3-frame queen mating hives in good condition, $1.00 each. P. J. Pooley, Mitchell, S. D.

FOR SALE—1000 or more once used 60-pound cans just like new, 25c F.O.B. here; also wanted white clover extracted honey. Honeymoon Products Co., 39 E. Henry St., River Rouge 18, Mich.

FOR SALE—Warehouse and three-room cabin, Sanford, Colorado. Good honey producing area. San Luis Valley. Terms. G. C. Walker, Pharr, Texas.

PRICED to sell, 200-400 colonies of bees located in Glenn County, Calif. Paul Wilson, Westwood, Calif.

FOR SALE: 51 colonies bees in Root 10-frame hives with supers and honey; inspected. Scott R. Lyon, Bellville, Ohio.

QUEENBEE PAINTING OUTFIT, $1.50; postpaid. Southwick Apiaries, Walpole, Massachusetts.

BEES, queens, bee supplies, honey. 30 years service. Harris Bee Supply, Jackson, Tenn.

FOR SALE: Eight and 10-frame, standard beekeeping equipment, clean, for 300 colonies. George R. Stanek, Sturgeon Bay, Wisconsin.

FOR SALE—New and reconditioned 10-frame hive bodies, nailed and painted, with frames. Ray C. Wilcox, Odessa, N. Y.

FOR SALE—New KD deep Root frames, also used supers, metal covers, bottom boards, etc., tanks, skids, lift truck. R. A. Cavin, R. D. 2, Blairstown, N. J.

FOR SALE—1000 10-frame 6⅝-inch supers with combs drawn from crimp wired foundation. No disease. Only $2.00 each. E. E. Salge, Box 59, Garland, Texas.

FOR SALE—Due to illness, 125 colonies bees and equipment. Inspected and free of disease. Everett Horton, R.F.D. 1, Nedrow, New York.

FOR SALE—14 two-story good colonies and some equipment. $100 for quick sale. No disease. J. Kubinski, 221 Dewitt Ave., Elmira, N. Y.

FOR SALE—56 colonies bees, state inspected, plus supers and combs. State sales permit expires May 31. Matt Slack, RD 1, Amherst, Ohio.

FOR SALE — 25 two and three-story hives of bees, $10.00 each, all or part. Extra combs and supers, deep, $2.50; shallow, $1.00 each. Located on W. L. W. Farm. Keep location if desired. Lester O. Marshall, 2514 May St., Cincinnati, Ohio.

FOR SALE — 150 hives near Houston, Texas. Mostly two and three bodies, very strong. Reason for selling: overgrown hobby. $12.50 each. O. B. Johnson, 1905 West 14th, Houston, Texas.

FOR SALE—100 two-story colonies of bees and equipment. State inspected. C. E. Glover, R. R. 5, Kalamazoo, Mich.

15 colonies 10-frame Root hives. Barth, 4613 Brooklyn Ave., Cleveland 9, Ohio.

FOR SALE: 250 two-story colonies, 1500 full-depth supers, extra bodies, lids, bottoms, excluders; 250 new bodies, lots of frames, lids, bottoms, never yet assembled; 45-frame extractor, three 200-gallon tanks. New and used honey cans. All standard 10-frame equipment. Louis Farrington, Henderson, Iowa.

FOR SALE—One 10-plate (bronze nickle-plated) honey filter complete with bronze bump pump as a portable unit; one large size stainless steel Brand melter; one Merry-Go-Round. Above items used one season. One large uncapping tank; one Flash heater. Archie H. Kauffman St. Johns, Rt. 3, Mich.

HONEY WANTED

Carloads and less than carloads. Mail sample and best prices in all grades.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

JENSEN Says:

QUALITY SPEAKS! First come, first served. This may sound terse, but the way orders are coming in we may soon have to check up on bookings, or give second choice of dates. Though our production of both packages and queens has been stepped up our facilities for expediting handling orders improved, it appears we may not have quite kept pace with the tempo of optimism prevailing among beekeepers even now.

"MAGNOLIA STATE" Italians
Productive and gentle. Predominately young bees, no drones, full weights.

Quantities	Queens	2-lb. w/q	3-lb. w/q
1-24	$1.25	$3.75	$4.75
25-99	1.15	3.50	4.50
100-up	1.05	3.25	4.25

Dadant's Improved "STARLINE" Hybrid Queens, add 25c per queen or package of bees to above prices. Wonderful producers and gentle. Clipped and Marked FREE. Queens Postpaid, via Air Mail where expedient. Package Bees by Express collect. If Parcel Post shipment is desired include postage. Write us for rate.

DADANT'S STARLINE HYBRIDS

Reg. U. S. Pat. Off.

JENSEN'S APIARIES
MACON, MISSISSIPPI U. S. A.
N. C. Jensen, Queen Breeder
Eugene Jensen, Apiary Manager

1953 QUEEN BEES

3-Banded Italians
Untested

1-9 ..... $1.10 each
10 or more ..... 1.00 each

Geo. W. Moore
Shasta, Shasta Co., California

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

Increase Production with Island Hybrid Bees

4-Way Island Hybrid Bees — developed by the Government and the Honey Bee Improvement Co-op. Asso. of Ohio, are produced by crossing two lines to produce the virgin which is mated to a drone of two other lines. The results — a complete Hybrid with increased vigor.

We still have some open dates. Be safe, order early.

Pkgs. with Hybrid Qns.	1-25	26-up
2 lb.	$3.50	$3.25 ea.
3 lb.	4.50	4.25 ea.

Regular queens, deduct 25c from above prices per package.

"They Produce"

Rossman Apiaries

Box 133 Moultrie, Ga.

PACKAGE BEES AND QUEENS

Three-Band Italian Stock

Ready April 1st

Hardy, gentle, and finest of honey gatherers. Delivered safely by speedy Parcel Post. Will ship by Express when requested.

2 lb.	$3.26	10 up	$3.15	Wt. 6 lbs.	
3 lb.	4.10	10 up	4.00	" 7½ lbs.	
4 lb.	4.95	10 up	4.85	" 8 lbs.	
5 lb.	5.80	10 up	5.70	" 10 lbs.	

QUEENS with all packages

Extra queens, $1.00; 10 up, 90c p.p.
Delivery charges extra on all pkgs.

PREMIUM SPECIAL

6 2½ lb. pkgs. with queen $21.00
(Units of 6 only) Wt. 38 lbs.

THE BEST BUY OF THE SEASON

No Disease, EVERY SHIPMENT "TOPS" FOR QUALITY.

Free Circular.

Crenshaw County Apiaries

Rutledge, Ala.

FOR SALE—150 colonies of bees, nine frames in 10-frame hives, four and one-half stories high, metal tops, inspected half summer, will be inspected again before sale, available for purchase about May 15. Price, $2700.00. Stevens Apiaries, 278 East College St., Oberlin, Ohio.

FOR SALE—66 colonies bees, and all equipment. In good shape. Carrie Robinsen, Mansfield, Pa.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold, or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

BOOKING ORDERS for 1953. Caucasians. 2-lb. pkg. $3.00; 3-lb. pkg. $4.00. Untested Queens, $1.00 each. Lewis & Tillery Bee Co., Greenville, Ala.

GOOD PACKAGE BEES AND QUEENS for 1953. Three-Banded Italians only. Outstanding honey producers. Long experience, ample financial responsibility, and over 1000 colonies to draw from makes this a safe place for your order. Write for prices. H. C. Short, Fitzpatrick, Alabama.

THREE BANDED Italian bees and queens, extra good workers and gentle to work with. 2-lb. with queen, $3.50; 3-lb. with queen, $4.50. Select queens, 1 to 25, $1.20; 25 to 50, $1.10; 50 up, $1.00 each. Alamance Bee Company, Graham, N. C., Phone 4703.

THE NORMA ROY APIARY Italian bees, 3 pounds with untested queen, $3.50; 4 pounds with untested queen, $4.00. Live delivery and a health certificate with shipment. Norma E. Roy & Son, Hessmer, Louisiana.

YANCEY HUSTLER Package Bees and Queens. Ready April 1st. 2-lb. pkg. with queen $3.50; 25 or more, $3.25 each. 3-lb. pkg. with queen, $4.50; 25 or more, $4.25 each. Satisfaction guaranteed. Caney Valley Apiaries, 2500 Nichols Ave., Bay City, Texas.

IMPROVED ITALIANS 600-lb. strain, 2-lb. pkg. with queen, $2.75; 3-lb. pkg. with queen, $3.60. Henry Loehr, Caldwell, Texas.

YELLOW ITALIAN bees and queens. Real producers, health certificate, satisfaction guaranteed. 2 pounds with queen, $3.75; 3 pounds with queen, $4.75; queens, $1.00 airmail postpaid. O. E. Brown, Rt. 1, Asheboro, North Carolina.

CAUCASIAN bees and queens. They are extra good workers and very gentle. 2-lb. with queen, $3.50; 3-lb. with queen, $4.50. Select queens, 1 to 25, $1.20; 25 to 50, $1.10; 50 up, $1.00 each. Satisfaction guaranteed. Black River Apiaries, Rt. 1, Currie, N. C.

GOLDEN ITALIAN bees and queens, very gentle and very yellow, 2-lb. with queen, $3.50; 3-lb. with queen, $4.50. Select queens, 1 to 25, $1.20; 25 to 50, $1.10; 50 up, $1.00 each. Carolina Bee Farm, Graham, N. C., Phone 7731.

CAUCASIANS, personally raised large queens, gentle, good workers, 1-19, $1.10; 20 up, $1.00 each. Fred Brock, McDonald, Tenn.

CERTIFIED Italian bees 50 cents pound after May 15th. You supply cages. A. V. Dowling, Valdosta, Georgia.

MISCELLANEOUS

CAR LOAD 5-pound friction top pails just received for prompt shipments to you. A. G. Woodman Co., Grand Rapids 4, Mich.

WANTED—50 colonies of bees in April. Fred Russell, Chelmsford, Mass.

HELP WANTED

WANTED help for work in bee yards and packing plant. Experience not essential. Excellent wages plus bonus. Other advantages. Schultz Honey Farms, Ripon, Wisconsin.

WANTED — Experienced beekeeper, strong young man to help do migratory bee work and honey producing, year round work. Modern equipment, good salary. J. E. Bunch, Sunnyside, Wash.

WANTED—Man with some experience as beeman, to work on 220 colonies for about 5 months on 50-50 basis. Will furnish 4-room house, also all tools and truck. Write to: Steve Zupko, 4463 23rd St., Wyandotte, Mich.

HELP WANTED — One extra man in April and another in June. Excellent wages paid. M. E. Ballard, Roxbury, N. Y.

WANTED—Man for 1953 season. Write stating age, wages expected, etc. SODER APIARIES, STRATFORD, IOWA.

SEEDS

HONEY PLANTS: - Seeds - Trees - Plants. Free illustrated catalog. Special: 37 plants (6 varieties labeled) attractive, unusual bee-garden perennials, $5.00 postpaid. Pellett Gardens, Atlantic, Iowa.

For NECTAR of higher sugar concentration, EUROPEAN BASSWOOD 3 foot, $2.25; 4 foot, $3.75 each. Any following collections, $1.20; three for $3.35; six for $5.00 postpaid—1 pink flowering HOBA CRAB, 2 foot; 5 SUMAC GLABRA, 18 inch; 5 SUMAC STAGHORN, 18 inch; 5 HARRINGTON PINK hardy ASTER divisions; 6 Lavender V. HARDY ASTER divisions; 5 SALVIA PROTENSIS (blue sage) 2 year; 3 NORDENS PINK LOOSESTRIFE divisions. List of new ADDITIONAL VARIETIES free. NICOLLET COUNTY NURSERY, St. Peter, Minn.

MAGAZINES

THE BEE WORLD, international and scientific journal on bees and beekeeping, with apiculture abstracts. Monthly, including membership in the Bee Research Association, $3.00 per annum, including apicultural abstracts. Dr. Eva Crane, Director, 55 Newland Park, Hull, Yorks, Eng.

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh. Dist. Naini Tal, U. P., India, or available through them. Subs. Rs7/ or 10 shillings or 2.25 dollars per annum. Single copy, Rs ¼s. 1/9 or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription $1.00, sample copy fifteen cents.

Quality Counts

Italian Bees and Queens

By Mail or Express	Wt.	1-25	25-up
2 lb. pkg. w/q	7 lb.	$3.00	$2.75
3 lb. pkg. w/q	9 lb.	4.00	3.75
Untested Queens			
First Quality		1.00	.90
Tested Queens		2.00	

We list weight of packages so you can check mail charges. Three packages to crate in U. S. A. Express best for Canada. Queens clipped on request and Airmailed.

Our 41st year — that is why we know **Quality** counts.

Merrill Bee Company

P. O. Box 115

State Line, Miss.

---

1 9 5 3

Prices for Early Bookings

3-Banded Italian Bees & Queens

Check these features:

1. **Shipping charges prepaid**
2. **Guaranteed safe arrival**
3. **Health certificate with each shipment**
4. **Queens clipped and painted, if desired, at no extra cost**
5. **Shipper rated in Dun & Bradstreet**
6. **No increase in price over last season**

1 9 5 3 PRICES DELIVERED PREPAID

Queens (each)	2-lb. & qn.	3-lb. & qn.	4-lb. & qn.	5-lb. & qn.
1 - 24	$1.10	$4.00	$5.00	$6.00	$7.00
25 - 99	1.00	3.75	4.70	5.65	6.60
100-499	.95	3.50	4.40	5.30	6.20

(For queenless packages — deduct price of queen.)

SHIPPED ANYWHERE IN UNITED STATES AND CANADA

Terms: One-third upon receipt of order, balance 10 days before shipment

H. C. BRUNSON

(formerly lessee)

Carolina Honey Company

P. O. Box 188 **Phone 4641**

Hampton, South Carolina

Three-Band Italian Package Bees and Queens and Pure Italian Three-Way D. R. Queens

Full weight, prompt shipment, young bees. State health certificate with each shipment. Live arrival guaranteed. Replacement or refund made promptly upon receipt of bad order from your express agent.

1953 Prices

Each Package with a Young Laying Queen

Lots of	2-lb.	3-lb.	4-lb.	5-lb.
1 - 29	$3.25	$4.00	$4.75	$5.50
30-100	3.00	3.75	4.50	5.25
100-up, each	2.80	3.50	4.25	5.00

Tested Queens $2.00 each **Untested Queens** $1.00 each

For introduced queens, add $1.00 per package. If queenless bees are wanted, deduct $1.00 from the price of each package.

Jackson Apiaries **Funston, Georgia,** **U. S. A.**

Whittle's

Leather Colored Italians

Get your Packages and Queens when you want them. Reserve 1953 shipping dates early.

2 lb. pkg. with queen, $3.00
3 lb. pkg. with queen, 4.00
Queens, each, 1.00

Our Bees and Service Will Please You.

G. E. Whittle
Star Route West
Greenville, Alabama

OK QUEENS

75c each, Airmail
Truck date opens May 7th
O. K. Anderson & Son Apiaries
Box 193 Coffee Springs, Ala.

Booking orders now. Over 30 years a shipper. Send for Free Circulars.

BLUE BONNET APIARIES
Weslaco, Texas

VIGOROUS 3-Banded Italians

Better queens — More honey per hive and less stings. That is what our customers say. Prompt shipment, full weight, health certificate, safe delivery guaranteed.

Write for prices.

SUNRISE APIARIES
Petal **Mississippi**

3-Banded
ITALIAN BEES & QUEENS

2-lb. pkg. with queen	$3.00
3-lb. pkg. with queen	4.00
Extra queens	1.00

J. P. CORONA
Box 124 **Kenner, La.**

BRITISH BEE JOURNAL

The Only WEEKLY Bee Journal in the World
Subscription $3.00 per annum payable in advance.
Keep up to Date in Beekeeping by taking out a subscription now through our agents:
Gleanings in Bee Culture
Medina, Ohio

Package Bees & Queens
Quality & Service
C. F. KOEHNEN & SONS
Glenn, California

WILLIAMS ITALIAN QUEENS
LARGE LEATHER COLORED THREE-BANDED
QUALITY SUPREME
CERTIFICATE WITH EACH SHIPMENT

1 - 9 Postpaid	$0.85
10 -99 " "	.75
100-up " "	.70

DR. WILLIAMS APIARIES
303 W. Defee Ave. **Baytown, Texas**

HARRELL'S BEES: Something to be proud of

The famous strain developed and produced by W. E. Harrell

Via Express Collect

For shipments April 1st through May 15th

	Queens	2 lb. pkg.	3 lb. pkg.	4 lb. pkg.	5 lb. pkg.
1-24	$1.20	$3.75	$4.65	$5.55	$6.50
25-99	1.10	3.50	4.40	5.30	6.25
100-up	1.00	3.25	4.15	5.05	6.00

Queen included in each package.

Package bees via Mail quoted on request

PRICES ON LATER SHIPMENTS QUOTED ON REQUEST

Pure mating, safe arrival and entire satisfaction guaranteed on everything I ship. Prompt and efficient service on all orders.

W. E. HARRELL

Hayneville **Alabama**

ORDER NOW

For April and May Delivery

	1-25	Over 25
2-lb. bees with queen	$3.50	$3.25
3-lb. bees with queen	4.50	4.25
Italian Queens (p.p.)	1.10	1.00

Prices on bees for shipment Express Col'ect. For Mail shipment add postage.
Supply Dealers and Co-op's write for quantity prices.

FINEST STOCK
RATED DUN & BRADSTREET
35 YEARS EXPERIENCE

J. F. McVay
Honey Home
Jackson, Alabama

Three-Banded Italian Package Bees and Queens

Quality and quantity with the kind of service you have a right to expect.

	Queens	2-lbs. w/q	3-lbs. w/q	4-lbs. w/q
1- 25	$1.15	$3.00	$3.90	$4.85
25- 50	1.05	2.90	3.80	4.75
50-100	1.00	2.85	3.75	4.65

Homan Bros.

R. 2 **Shannon, Mississippi**

If you are taking time to read, why not read the best? Condensed to save you time. Illustrated to give you pleasure.

Modern Beekeeping
The Picture Bee Magazine
Box 210 Clarkson, Kentucky

"The Australian Bee Journal"
Published by the Victorian Apiarists' Association at the beginning of each month.
Subscription 10/-per annum plus 2/6 postage to oversea countries.
Address 112 Whitehorse Rd.
Ringwood, Victoria, Australia

Peace is for the strong . . .
Buy U. S. Defense Bonds regularly!

York's Package Bees and Queens for 1953

Quality and Service

7,500 colonies

Your Choice of Two Outstanding Strains
Quality Bred Dadant's Starline Hybrids
Quality Bred Italians

The Preference of Leading Honey Producers

Reg. U. S. Pat. Off.

Packages with Italian queens

Quantity	1-24	25-90	100-up
2-lb. pkg.	$3.75	$3.50	$3.25
3-lb. pkg.	4.75	4.50	4.25
4-lb. pkg.	5.75	5.50	5.25
5-lb. pkg.	6.75	6.50	6.25
Extra queens	1.30	1.20	1.10

Queenless packages, deduct $1.00 per pkg. Tested queens, add $1.00 each extra. Above prices are for/or with our regular line Italians. For DADANT'S STARLINE HYBRIDS add 25 cents additional to above prices.

Shipment by express, parcel post, or your truck. Detailed information available. Book your order now without delay and have your bees shipped when wanted.

YORK BEE CO. Jesup, Georgia, U.S.A.

(The Universal Apiaries)

ITALIAN BEES AND QUEENS

2-lb. package with queen	$2.75
3-lb. package with queen	3.50
Queens (postpaid)	.80

Satisfaction and live delivery guaranteed. Health certificate with each shipment.

BAYOU BEE CO.

Rt. 1 Box 49 Montegut, La.

ITALIAN BEES AND QUEENS

	1-24	25-up
2-lb. pkg. with queen	$3.00	$2.80
3-lb. pkg. with queen	3.80	3.45
4-lb. pkg. with queen	4.60	4.35
5-lb. pkg. with queen	5.40	5.15
Extra queens,		.85

Live delivery guaranteed and health certificate. 10% books your order. Balance 10 days before shipping date.

GASPARD BEE CO. HESSMER, LA.

Healthy Italian Bees & Queens
Write for 1953 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

Canada's National Monthly Magazine for Beekeepers

Canadian Bee Journal

Streetsville, Ontario, Canada

U. S. Subscription Price, only $1.75 per year.

A TALK TO BEGINNERS

(Continued from page 220)

tub, on top of two sticks laid across the tub. The sugar syrup is made of equal parts granulated sugar and water. The warm syrup should be poured on the top screen of the shipping cage in order that the syrup may run down though all of the packages. No syrup is wasted. More than one application of syrup is necessary for bees to become well filled before they are put into the hives.

When the weather is cool it is necessary to feed the bees warm sugar syrup. After taking all of the syrup they can hold, the bees should be dumped into the hive after four or five frames are temporarily removed, from the hive. The bees will not fly around much because they are filled with syrup. The queen, which is also wet with syrup, should be released from her cage among the bees. She cannot fly away because her wings are wet. She will start to lay sooner than a queen that had to be released from a queen cage by the bees. Packages should be installed late in the evening so that the bees will settle down during the night.

Good "Gulf Breeze" Italians

As usual, we are well prepared to serve you with extra quality queens and packages. Plenty of bees, queens, and help are at your service, and that means service and quality. Don't be confused with bargains, as you usually receive what you pay for and no more. Only quality queens and packages delivered on time will pay.

Quantity	Queens	2-lb. w/q	3-lb. w/q	4-lb. w/q
1 - 24	$1.25	$3.50	$4.40	$5.40
24 - 99	1.15	3.35	4.25	5.25
100 - 500	1.10	3.25	4.15	5.15

Bessonet Bee Co. Donaldsonville, La.

PACKAGE BEES — QUEENS

Caucasians — **Italians**

We have the bees that PRODUCE — and the SERVICE that counts.

Express Mail Air Freight

Wire us your needs. Shipments from San Antonio, Texas, daily.

	1-24	25-100
Untested Queens	$1.30	$1.10
2-lb. pkg. with queen	3.50	3.00
3-lb. pkg. with queen	4.60	4.10

The Coffey Apiaries **Whitsett, Texas**

Dadant's Starline Hybrids John Davis Italians
Produced in Little's Apiaries

Best Quality, Prompt Service, Full Weight.
Booking orders now for spring delivery.

Reg. U.S. Pat. Off.

LITTLE'S APIARIES P. O. Box 122 Shelbyville, Tenn.

Package Bees with Mated Queens
Italian or Caucasian

Customers: They are better bred, more profitable, gentle, and good honey producers. No deposit required to book your order. Full weight, health certificate, and live arrival guaranteed with each shipment. Send your requirements now.

— Prices —

Lots of	Queens	2 lb.	3 lb.	4 lb.
1 -25	$1.15	$3.00	$3.90	$4.85
25-50	1.05	2.90	3.80	4.75
50-100	1.00	2.85	3.75	4.65

FARRIS HOMAN
Shannon, Mississippi

THREE-BANDED ITALIAN BEES AND QUEENS

We guarantee liberal overweight packages, young baby bees, young mated queens, no drones. Shipping cages made of extra light material which saves on postal and transportation charges.

	Queens	2-lb. w/q	3-lb. w/q
1 -24	$1.00	$2.75	$3.65
25 -99	.90	2.60	3.50
100-up	.75	2.45	3.35

For queenless pkg. deduct price of queen

Prompt Service — Live Delivery Guaranteed

LUCEDALE APIARIES
Lucedale, Mississippi

PLANT'S 3-banded ITALIANS

PRODUCTIVE — GENTLE
EASY TO HANDLE

The quality, service, and reliability we offer is backed by over 45 years' experience.

We guarantee prompt shipment, safe delivery by express, and complete satisfaction.

Health certificate on all shipments.

	1-24	25-99	100-up
2-lbs. w/q	$3.50	$3.25	$3.00
3-lbs. w/q	4.50	4.25	4.00
Queens	1.25	1.15	1.10

For larger packages, add $1.00 per pound.

W. E. PLANT
HATTIESBURG, MISSISSIPPI

HOWARD WEAVER'S

Caucasian Bees & Queens

	Queens	Packages 2-lb. w/q	3-lb. w/q
1 -24	$1.25	$3.85	$4.85
25-49	1.15	3.60	4.60
50-up	1.05	3.35	4.35

Package bees express collect. Live delivery guaranteed. By parcel post write for estimate of charges. Queens prepaid by air mail when expedient.

Howard Weaver
Navasota, Texas

—QUEENS—

Top Quality Italians
Personally raised Queens

1-10	$1.50
10-49	1.25
50-499	1.05
500 or more	1.00

Prices Postpaid Airmail
No Baby Nuclei

SAM E. MOORE

New Address New Phone
Rt. 1, Box 620 REDDING
Anderson, Calif. -147 W 3

SULLIVAN'S ITALIANS

2 lb. pkg. with queen	$3.00 each
3 lb. pkg. with queen	4.00 each
Queens	1.00 each

Write for Quantity Prices.
Live Delivery and Satisfaction Guaranteed

SULLIVAN'S APIARIES
GILBERTOWN, ALA.

RIGHT DIET FOR BEES

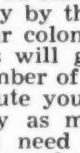
(Continued from page 211)

less effective than that in which dried brewers' yeast is used.

About one-half cup less of sugar syrup to a pound of dry pollen substitute should be used when preparing candy from the soybean flour-dried skim milk mixture.

In computing the amount of food necessary for the apiary, one has to remember that candy made of one pound dry pollen substitute and one quart of 2:1 sugar solution will provide food for a single feeding of three to four colonies, depending on their strength. Estimate how many times you are going to feed your colonies (about eight to ten times if you start feeding in March). Multiply by this number the number of your colonies and divide by three—this will give you the approximate number of pounds of dry pollen substitute you have to prepare. Make only as much candy at a time as you need for a single feeding of your colonies. The candy doesn't keep well in storage. The dry pollen substitute can be kept over a year if stored in tightly covered containers and is free from insect infestation.

In the current numbers of the bee journals you may find advertisements of firms selling the ingredients for preparing pollen substitutes. Your bee supply dealer may have the materials on hand to sell in small quantities.



NORMAN BROS. PACKAGE BEES

For 1953 let's make it a prosperous year by starting with young vigorous healthy package bees and queens. Only good quality packages pay profits. The past 32 years the foundation of our business has been to furnish you the best bright 3-banded Italians that money could buy. Prompt service, full weight, safe arrival, health certificate, and satisfaction guaranteed.

— Prices —

	1-9	10-100
2-lb. pkg. w/q	$3.00	$2.75
3-lb. pkg. w/q	3.75	3.50
Untested queens	1.00	.90
Tested queens	2.00	1.75

Package bees are shipped express F.O.B. If wanted shipped parcel post, add postage.

NORMAN BROS. APIARIES
Ramer, Ala.

770 PACKAGES FROM GEORGIA TO ONTARIO

(Continued from page 203)

or not, including the uniting of different colonies, or brood from different colonies. The success of such work, and our way of introducing queens, depends on several factors, firstly, that we work smoothly, quietly, and with as little smoke as possible. Secondly, that we are sufficiently familiar with bee behavior to recognize when their behavior is not what it should be. In other words, what we try to accomplish is to unite two colonies, or parts of two colonies, without them knowing that anything unusual has happened. This requires only those two fundamentals already mentioned—a keen eye and quiet smooth operation. Smoke or handling in a manner as to cause the bees to become restless will, of course, nullify your work.

While I have read that each colony has its own peculiar odor and that it is this which is the source of trouble when uniting colonies, my own experience is that the most important single catalyst in starting trouble is to have a nervous flighty bee start racing around the comb. One such bee will start the whole reaction. The ultimate aim then is to be able to put in a brood comb of normal, busily-occupied, slow-moving bees. Actually in our work we do very little comb exchanging but rather work with whole supers of brood. But the principle involved is the same. If one is alert and versed in the behavior of bees this method does work.

Commencing early in June we equalize the strong colony by taking a full super of brood and bees from the strong colony and placing it directly on the package colony. In addition to making sure that the two halves of this marriage are compatible we must be sure that there is an ample supply of honey because the package field force may not be able to look after the added load should bad weather set in. From then on it is handled as a normal colony.

In closing, I wish to stress that I have outlined our methods not with the idea that this procedure is suited to everybody but rather thinking that possibly some of your readers may find something of interest in our methods which may possibly differ somewhat from their own.

HARPER'S FAMOUS

HIGH QUALITY ITALIAN QUEENS & PACKAGE BEES

Lots of	2 lbs. w/q	3 lbs.	4 lbs.	5 lbs.
1-29	$3.25	$4.00	$4.85	$5.50
30 up	3.00	3.75	4.60	5.25

Queens $1.00 each, by Airmail

Bees are very prolific and Extra Good Honey Gatherers. For **Prompt Shipment** and **Service** on your rush orders, send them to me. Live arrival guaranteed. Health certificate with each shipment.

Carlus T. Harper
New Brockton, Ala.

CAUCASIANS
CARNIOLANS

Hardy, prolific, rapid build-up, best of workers. Caucasians have longest tongue of any race. Often work on red clover. **GENTLEST OF ALL RACES.** Gentleness is safest in towns, near neighbors, or near the highway. Gentleness saves time, sweat, patience, and work.

Untested queens, $1.20 each, Air Mail

Discount on quantities. Ask. A few packages yet. Be back in our Glen Gardner, N. J. yards May 1st. Over 28 years a queen breeder.

Albert G. Hann
La Belle, Florida

Package Bees for 1953

Truck loads a specialty
Nuclei made to order
Italian Queens

Eugene Walker

Live Oak, Calif.

STOP! LOOK! ORDER!

Your package bees and queens —
Good quality Italians —
Dependable service.

Joe Pencin

Box 517 **Davis, California**

Better-Bred Queens **Three-Banded Italians**

Frame after frame of smooth, even brood; super after super of honey; gentle bees; swarming cut to minimum. This is what you get when buying our Better-Bred Stock. Plenty of bees ready for April 1st shipment. Order direct from this ad at the following prices:

	Queens	2-lb. w/q	3-lb. w/q
1-18	$1.15	$3.25	$4.15
18-99	1.05	3.10	4.05
99 or more	1.00	3.00	4.00

Calvert Apiaries **Calvert, Alabama**

STARLINE **SUNKIST** **ITALIANS**

We are not in a position to judge what others may have to offer, but WE KNOW we have only top quality queens and packages. Your choice of two outstanding lines—Dadant's Starline and Sunkist Italians:

	Starline Q.	Italian Q.	2-lb.	3-lb.
1 -24	$1.50	$1.20	$3.50	$4.50
Reg. U. S. 24 -99	1.40	1.10	3.25	4.25
Pat. Off. 100-up	1.30	1.00	3.00	4.00

Above package prices with Italian queens; with Starline queen, add 30c.

SUNKIST BEE COMPANY CONVENT, LA.

Genuine Three Banded Italian Queens and Package Bees

Qua'ity — Service — Satisfaction — Dependability

	1 - 24	25 - 50	50 up
2-lb. Pkg. with Queen	$3.00	$2.90	$2.80
3-lb. Pkg. with Queen	4.00	3.90	3.80
4-lb. Pkg. with Queen	5.00	4.90	4.80
Large Young Queens	1.00	.90	.85

HOLDER APIARIES

LEROY, ALABAMA

TOO LATE TO CLASSIFY

We need more space and offer for sale: Several thousand 10-frame hive bodies, $1.25 each; frames, $2.00 each; 100 M. Dadant bodies, $1.50 each; several hundred used honey cans, 20c each; also several hundred 10-frame bodies in Wisconsin. Several thousand new one pound honey jar caps, 58MM white, $5.00 per 1000; packed 1900 per box; one factory rebuilt World labeler, $650; one new cap tightener, $175; one new vacuum pump, $60; bee hive and frame making machinery, $3000 (sell as a lot). New 10-frame bodies KD, $1.25 each; M. D. frames KD, per 1000, $80.00; quart square clear jars, caps, per case 12, 65c; non-sag unwired foundation for Jumbo frames, $1.00 pound; 5 pounds wire, $3.00. Used equipment will be sterilized. Write for quantity prices. Southern location, 16 acres, buildings, house, machinery, near Sylvester, Ga. Sale or lease. Alan Eby, Hyland Apiaries, West Elkton, Ohio.

FOR SALE—About 180 colonies bees and equipment. Margaret Cain, 965½ E. Stewart, Flint, Mich.

FOR SALE—Modern honey extracting plant in the clover region. Buildings, equipment, lot 50 x 70. One-half block from truck highway within city limits. Running water and electricity. For further particulars, write. A. V. Larson, Madison, Minn.

BEE LINES TO THE EDITOR

(Continued from page 196)

deal with want better honey than that.

"I would like to refer these two beekeepers, as I suppose they are, to H. H. Root's article, 'When is Comb Honey too Old' on page 611 in October Gleanings, 1950. We had some crystallized clover comb honey at the time I read the article. I began taking it home and was it good on toast! We told some of our customers about it and as a result it all moved. Strong-flavored comb honey would be out".—W. H. S.

BEEKEEPING IN BOLIVIA

(Continued from page 208)

tins are attractively labeled and are similar to the containers of canned goods seen on any store shelf in North America.

The beekeepers of the Santa Cruz region have the only beekeepers' association in Bolivia, so I am told. It is called Cooperative Apicola Crucena, Ltda. Sr. Wm. Kenning is its enthusiastic and active president. The other officers of this association are Noel Kempff Mercado, Secretary; Angel Bruun, Treasurer; and Medardo Torrez, Technical Inspector. This association has 67 members who own a combined total of 1,200 hives of bees in the Santa Cruz vicinity, which produced a total of 66,000 pounds of honey for the market this past year. Annual meetings are held at which association business is conducted and beekeeping literature is displayed. The association helps its members in obtaining needed supplies. Its activity in the interests of bee culture here in Bolivia is doing much in the promotion of the bee industry.

ITALIAN
PACKAGE BEES AND QUEENS
for 1 9 5 3
Write for Prices
GIRARDEAU APIARIES
Tifton, Ga.

ITALIAN BEES
2 lb. and queen $2.75
3 lb. and queen 3.50
25 cents off on 100 or more
Live delivery guaranteed
Prompt shipment
A. J. HOOK Eutaw, Ala.

Good Italian Queens
One Dollar Each
White Pine Bee Farms
Rockton, Pa.

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE
Keep up on markets, practices, scientific data, regulations, and plant possibilities.
1 year, $2.00, U. S. and Canada
Foreign postage, 50c a year extra
AMERICAN BEE JOURNAL
Hamilton, Illinois

OUR CUSTOMERS SAY:
That our bees are the best, after comparing them with others. For honey production, disease resistance, and gentleness, our LADYLIKE Mountain Gray Caucasian bees cannot be surpassed.
Health Certificate with each shipment.

* * * * *

Select untested queens:

1-11	12-49	50 or more
$1.30 each	$1.20 each	$1.10 each

2-lb. pkgs. with select untested qns.

1-11	12-49	50 or more
$3.75 each	$3.65 each	$3.50 each

3-lb. pkgs. with select untested qns.

1-11	12-49	50 or more
$4.75 each	$4.65 each	$4.50 each

Free Circular on request.

CAUCASIAN APIARIES
Castleberry, Alabama

$ $ $ $ $ $ $ $ $ $ $
PACKAGE BEES & QUEENS
Shipped from Georgia
by Express Collect
Our Ohio Queens Ready After June 1
2 lb. Bees & Queen $3.25
3 lb. Bees & Queen 4.25
Italian Queens 1.25
Discount on Large Orders
R. L. Livermore Apiaries
BELLE CENTER, OHIO
$ $ $ $ $ $ $ $ $ $ $

ITALIAN BEES & QUEENS
If you need **package** bees or queens in a hurry, write us for one or a thousand. Our increase in production means no delays for you.

Pkgs. w/q	1-24	25-99	100 up
2 lb.	$3.00	$2.90	$2.80
3 lb.	4.00	3.85	3.75
4 lb.	5.00	4.85	4.75
Nice large Queens	.95	.90	.85

All queens personally reared and live delivery guaranteed.

Mitchell's Apiaries
Bunkie, La.

Look for this Sign
When you Want
QUALITY AT LOW COST

Trade Mk. Reg.
U. S. Pat. Off.

KELLEY — "The Bee Man"

BEES and QUEENS

Three-banded Italian bees and KELLEY'S ISLAND improved hybrid queens direct from our own farm. Shipments start April 1st, express or parcel post shipment. Thousands of extra queens.

	Kelley Island Queens	2-lb. bees & K. I. queen	3-lb. bees & K. I. queen
1-24	$1.10 air mail	$3.50	$4.50
25-99	1.00 air mail	3.25	4.25
100-up	.95	3.00	4.00

THE WALTER T. KELLEY CO., Clarkson, Ky.

ALWAYS BEST **AHEAD OF THE REST**

BERRY'S "OLD RELIABLE" STRAIN ITALIAN BEES

Definitely, the **PREFERRED** stock of **MAJOR SUCCESSFUL HONEY PRODUCERS** the **WORLD** over. **INSURE** your crop with young, vigorous, producing, **DEPENDABLE BERRY BEES.** Fifty-eight years of **SELECT** breeding.

PRICES TO MAY 10th:

Package Bees With Queens and Individual Queens

	Queens	2-lb Pkg.	3-lb. Pkg.	4-lb. Pkg.	5-lb. Pkg.
1-24	$1.15	$3.50	$4.50	$5.50	$6.50
25-99	1.10	3.40	4.40	5.40	6.40
100-499	1.05	3.30	4.30	5.30	6.30
500-UP	1.00	3.25	4.25	5.25	6.25

For prices on queenless packages deduct price of queen.

M. C. BERRY & SON P. O. BOX 684 MONTGOMERY, ALA.

QUALITY BRED QUEENS

Italians	$1.00 each
Caucasians	1.15 each
Hybrids	1.00 each

All queens shipped by Air Mail and guaranteed to please. Shipment starts about March 10th.

Walter D. Leverette Apiaries

P.O. Box 364 Fort Pierce, Fla.

SMITH'S

Bees and Queens

We will have some open dates last of April and May. Many years' experience in producing QUALITY bees and queens will assure you of the very best obtainable. Write us how many you will need, and we will quote our attractive prices immediately.

N. B. Smith & Co.

Calhoun, Alabama

The most revolutionary improvment in the hive since Langstroth—

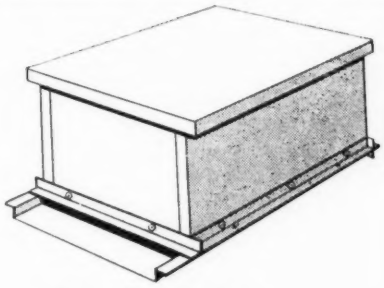
The "UNI-TEMP" ALUMINUM HIVE

- Cooler in summer
- Warmer in winter
- Exceptionally long life
- Light weight
- Rust free, rot free
- Never needs painting
- Accurately bee-spaced

(Patent application in preparation.)

Free Catalog by return mail.

The A. H. HALE CO. **Hapeville, Georgia**



Spring Preview

ITALIAN

PACKAGE BEES and QUEENS

6,000 PACKAGES FOR SPRING DELIVERY

	1-9	10-99	100-up
2 lb. pkg. with young laying queen	$3.25	$3.00	$2.90
3 lb. pkg. with young laying queen	4.25	4.00	3.80
4 lb. pkg. with young laying queen	5.25	5.00	4.75
Extra Queens			$1.00 Each

PLACE YOUR ORDER NOW AND RESERVE CHOICE SHIPPING DATE.
Shipments By Express or Parcel Post. Guaranteed Live Delivery.

Quality Does Not Cost . . . It Pays

THE WILBANKS APIARIES, Claxton, Ga.

Brazos Valley Apiaries Cameron, Texas **Package Bees** Brazos Valley Apiaries Cameron, Texas

By Express, Parcel Post or Truck

Your Choice of ITALIAN OR CAUCASIAN QUEENS

	1 pkg.	2 or more
2 lbs. bees with young queen	$3.25 each	$3.00 each
3 lbs. bees with young queen	4.25 each	4.00 each

Over a quarter century in the same place, same business, under the same name, is my record. My motto: "I expect to do business with you again."

H. E. Graham Cameron, Texas

ITALIAN PACKAGE BEES AND QUEENS

Quantity (pkgs.)	2-lb. with queen	3-lb. with queen	4-lb. with queen
1 to 24	$3.00 ea.	$4.00 ea.	$5.00 ea.
25 to 99	2.90 ea.	3.80 ea.	4.80 ea.
100 or more	2.85 ea.	3.75 ea.	4.65 ea.
QUEENS:	1.00 ea. Postpaid		

GOLD LEAF APIARIES BOX 252 HAHIRA, GA. U.S.A.

For Top Quality and Service on Package Bees and Queens
Send Us Your Orders.
We Offer Two Quality Strains:—

Garon's Three-Banded Italian Queens
Dadant Starline Hybrid Queens

Reg. U. S. Pat. Off.

Queens will be mailed Postpaid. If Parcel Post is wanted on Package Bees, shipments will be sent C.O.D. for postage and Special Handling Charges.

Prices:

	Italians	Starlines	2-lb. w/qn.	3-lb. w/qn.	4-lb. w/qn.	
1 -24	$1.20	$1.50	$3.50	$4.45	$5.40	Ex. Co.
25 -99	1.15	1.40	3.35	4.30	5.25	" "
100-up	1.10	1.30	3.25	4.20	5.15	" "

If Dadant Starline Queens desired with packages, add 25c per package.
Queens clipped and/or painted without extra charges.

GARON BEE COMPANY Donaldsonville, La., U. S. A.

PACKAGE BEES WITH YOUNG LAYING QUEENS

	2-lbs.	3-lbs.	extra queens
1 -24	$3.75	$4.75	$1.20
25 -99	3.50	4.50	1.15
100-up	3.25	4.25	1.10

Dark Italians that will get the honey. A shipper for 26 years.

WEAVER APIARIES - - - - - Navasota, Texas

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